SEQUENCE LISTING

<110> Council of Scientific and Industrial Research

<120> A COMPUTATIONAL METHOD FOR THE IDENTIFICATION OF CANDIDATE PROTEINS USEFUL AS ANTI-INFECTIVES

<130> Q63915

<160> 118

<170> PatentIn version 3.0

<210> 1
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<213> C. jejuni

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<223> gi|6967728

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Met Ala Tyr Glu Asp Glu Glu Asp Leu Asn Tyr Asp Asp Tyr Glu Asn
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Glu Asp Glu Glu Tyr Pro Gln Asn His His Lys Asn Tyr Asn Tyr Asp
            20   25   30

Asp Asp Asp Tyr Glu Tyr Asp Asp Asp Asn Asn Asp Asp Asp Phe Tyr
            35   40   45

Glu Met Asp
    50

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<213> C. jejuni

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Met Thr Met Leu Asp Ile Phe Glu Ile Ile Phe Ile Thr Thr Val Val
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Ile Ile Gly Phe Gly Gly Ile Val Phe Val Val Thr Lys Glu Lys Lys
            20   25   30

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<213> C. jejuni

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Met Ser Phe Glu Glu Asn Leu Lys His Ala Asn Glu Ser Leu Glu Lys
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Leu Asn Asn Gln Glu Leu Ala Leu Asp Glu Ser Val Lys Ile Tyr Lys
            20   25   30

Glu Gly Leu Glu Ser Ile Lys Lys Ala Arg Leu Glu Leu Glu Lys Ala
            35   40   45

Lys Leu Glu Val Glu Gln Ile Asp Glu
    50   55

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<213> C. jejuni

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<223> gi|6968611

<400> 4

Met Lys Ile Leu Leu Leu Asn Glu Asn Pro Val Val Ser Arg Leu Val

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1                    5                         10                              15

Ser Leu Ser Ala Lys Lys Met Ser Tyr Asp Phe Glu Glu Leu Asn Ala
            20              25                  30

Tyr Ser Glu Asn Leu Gly Asn Tyr Asp Val Ile Val Val Asp Ser Asp
            35              40              45

Thr Pro Ala Pro Leu Lys Ile Leu Lys Glu Lys Cys Asp Arg Leu Ile
        50              55              60

Phe Leu Ala Pro Arg Asn Gln Asn Val Glu Asp Ile Asp Ala Gln Ile
65                  70              75                      80

Leu Gln Lys Pro Phe Leu Pro Thr Asp Phe Leu Asn Leu Leu Asn Asn
                85              90                  95

Lys Asp Ala Asn Lys His Thr Ser Ile Asp Leu Pro Met Leu Ser Asn
            100             105             110

Asp Glu Asn Pro Tyr Ala Asp Ile Ser Leu Asp Leu Asp Asn Leu Asn
            115             120             125

Leu Asp Asp Leu Pro Asp Glu Asn Ser Leu Asp Ile Asn Ser Glu Gly
    130             135             140

Met Glu Asp Leu Ser Phe Asp Asp Asp Ala Gln Asp Asp Asn Ala Asn
145             150             155             160

Lys Thr Leu Glu Thr Gln Asn Leu Glu His Glu Thr Ile Lys Glu Gln
            165             170             175

Thr Gln Glu Asp Thr Gln Ile Asp Leu Asp Leu Thr Leu Glu Asp Gly
            180             185             190

Glu Ser Glu Lys Glu Asp Leu Ser Gln Glu His Thr Ala Leu Asp Thr
            195             200             205

Glu Pro Ser Leu Asp Glu Leu Asp Asp Lys Asn Asp Glu Asp Leu Glu
    210             215             220

Ile Lys Glu Asp Asp Lys Asn Glu Glu Ile Glu Lys Gln Glu Leu Leu
225             230             235             240

Asp Asp Ser Lys Thr Asn Thr Leu Glu Met Gln Glu Glu Leu Ser Glu
            245             250             255

Ser Gln Asp Asp Asn Ser Asn Lys Thr Leu Glu Thr Gln Asn Leu Glu
            260             265             270

His Asp Asn Leu Glu Gln Glu Thr Ile Lys Glu Gln Thr Gln Glu Asp
    275             280             285

Thr Gln Ile Asp Leu Asp Leu Thr Leu Glu Asp Gly Glu Ser Glu Lys
    290             295             300

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Glu Asp Leu Ser Gln Glu His Thr Ala Leu Asp Thr Glu Pro Ser Leu
305   310   315   320

Asp Glu Leu Asp Asp Lys Asn Asp Glu Asp Leu Glu Asp Asn Lys Glu
            325   330   335

Leu Gln Ala Asn Ile Ser Asp Phe Asp Asp Leu Pro Glu Val Glu Glu
            340   345   350

Gln Glu Lys Glu Met Asp Phe Asp Asp Leu Pro Glu Asp Ala Glu Phe
            355   360   365

Leu Gly Gln Ala Lys Tyr Asn Glu Glu Ser Glu Glu Asn Leu Glu Glu
        370   375   380

Phe Ala Pro Val Val Glu Glu Asp Ile Gln Asp Glu Ile Asp Asp Phe
385   390   395   400

Ala Ser Asn Leu Ser Thr Gln Asp Gln Ile Lys Glu Glu Leu Ala Gln
            405   410   415

Leu Asp Glu Leu Asp Tyr Gly Ile Asp Ser Asp Asn Ser Ser Lys Val
            420   425   430

Leu Glu Asp Phe Lys Asp Glu Pro Ile Leu Asp Asp Lys Glu Leu Gly
            435   440   445

Thr Asn Glu Glu Glu Val Val Val Pro Asn Leu Asn Ile Ser Asp Phe
        450   455   460

Asp Thr Leu Lys Glu Ser Asp Ile Gln Glu Ala Leu Gly Glu Glu Ile
465   470   475   480

Leu Glu Lys Asn Glu Glu Pro Ile Val Ser Asp Val Thr Lys Asp Asp
            485   490   495

Asn Ser Glu Glu Ile Val Asn Glu Leu Ser Gln Ser Ile Ala Gly Ala
            500   505   510

Ile Thr Ser Ser Ile Lys Asp Asp Thr Leu Lys Ala Ala Leu Lys Gly
            515   520   525

Met Asn Met Asn Ile Asn Ile Asn Ile Ser Phe Lys Glu Asp
        530   535   540

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<213>   C. pneumoniaeCWL029

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Met Ile Gly Ala Gln Lys Lys Gln Ser Gly Lys Lys Thr Ala Ser Arg
1   5   10   15

Ala Val Arg Lys Pro Ala Lys Lys Val Ala Ala Lys Arg Thr Val Lys
            20   25   30

Lys Ala Thr Val Arg Lys Thr Ala Val Lys Lys Pro Ala Val Arg Lys
            35   40   45

Thr Ala Ala Lys Lys Thr Val Ala Lys Lys Thr Thr Ala Lys Arg Thr
    50   55   60

Val Arg Lys Thr Val Ala Lys Lys Pro Ala Val Lys Lys Val Ala Ala
65   70   75   80

Lys Arg Val Val Lys Lys Thr Val Ala Lys Lys Thr Thr Ala Lys Arg
            85   90   95

Ala Val Arg Lys Thr Val Ala Lys Lys Pro Val Ala Arg Lys Thr Thr
            100   105   110

Val Ala Lys Gly Ser Pro Lys Lys Ala Ala Ala Cys Ala Leu Ala Cys
            115   120   125

His Lys Asn His Lys His Thr Ser Ser Cys Lys Arg Val Cys Ser Ser
    130   135   140

Thr Ala Thr Arg Lys His Gly Ser Lys Ser Arg Val Arg Thr Ala His
145   150   155   160

Gly Trp Arg His Gln Leu Ile Lys Met Met Ser Arg
                165   170

<210> 6
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<212> PRT
<213> C. trachomatis

<220>
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<223> hypothetical protein-possible frameshift with CT593

<220>
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<223> gi|3522902

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Met Phe Thr Leu Phe Leu Cys Glu His Leu Leu Thr Asn Ile Leu Ala
1   5   10   15

Ser Ser Phe Leu Ala Lys Ser Gln Gly Phe Ile Thr Leu Val Asn Leu
            20   25   30

Phe His Lys Ile Pro Gly Leu Lys Val Ile Glu Ile Thr Cys Leu Ala
            35   40   45

Leu Pro Leu Gly Ile His Ser Ile Ile Gly Phe Ser Tyr Leu Leu
    50   55   60

<210>   7
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<212>   PRT
<213>   C. trachomatis

<220>
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<223>   histone like protein 2

<220>
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<400>   7

Met Asn Met Leu Gly Val Gln Lys Lys Cys Ser Thr Arg Lys Thr Ala
1   5   10   15

Ala Arg Lys Thr Val Val Arg Lys Pro Ala Ala Lys Lys Thr Ala Ala
            20   25   30

Lys Lys Ala Pro Val Arg Lys Val Ala Ala Lys Lys Thr Val Ala Arg
            35   40   45

Lys Thr Val Ala Lys Lys Thr Val Ala Ala Arg Lys Pro Val Ala Lys
    50   55   60

Lys Ala Thr Ala Lys Lys Ala Pro Val Arg Lys Val Ala Ala Lys Lys
65   70   75   80

Thr Val Ala Arg Lys Thr Val Ala Lys Lys Thr Val Ala Ala Arg Lys
            85   90   95

Pro Val Ala Lys Lys Ala Thr Ala Lys Lys Ala Pro Val Arg Lys Ala
            100   105   110

Val Ala Lys Lys Thr Val Ala Arg Lys Thr Val Ala Lys Lys Thr Val
            115   120   125

Ala Ala Arg Lys Pro Val Ala Lys Arg Val Ala Ser Thr Lys Lys Ser
    130   135   140

Ser Ile Ala Val Lys Ala Gly Val Cys Met Lys Lys His Lys His Thr
145   150   155   160

Ala Ala Cys Gly Arg Val Ala Ala Ser Gly Val Lys Val Cys Ala Ser
            165   170   175

Ala Ala Lys Arg Lys Thr Asn Pro Asn Arg Ser Arg Thr Ala His Ser
        180   185   190

Trp Arg Gln Gln Leu Met Lys Leu Val Ala Arg
        195   200

<210> 8
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<212> PRT
<213> H. influenzae

<220>
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<223> outer membrane integrity protein (tolA)

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<221> misc_feature
<223> gi|1573353

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Met Gln Asn Asn Arg Gln Lys Lys Gly Ile Asn Ala Phe Ala Ile Ser
1   5   10   15

Ile Leu Leu His Phe Ile Leu Phe Gly Leu Leu Ile Leu Ser Ser Leu
        20   25   30

Tyr His Thr Val Glu Ile Met Gly Gly Gly Glu Gly Glu Gly Asp Val
        35   40   45

Ile Gly Ala Val Ile Val Asp Thr Gly Thr Ala Ala Gln Glu Trp Gly
    50   55   60

Arg Ile Gln Gln Gln Lys Lys Gly Gln Ala Asp Lys Gln Lys Arg Pro
65   70   75   80

Glu Pro Val Val Glu Glu Lys Pro Pro Glu Pro Asn Gln Glu Glu Ile
            85   90   95

Lys His Gln Gln Glu Val Gln Arg Gln Glu Glu Leu Lys Arg Gln Gln
        100   105   110

Glu Gln Gln Arg Gln Gln Glu Ile Lys Lys Gln Gln Glu Gln Ala Arg

Gln Glu Ala Leu Glu Lys Gln Lys Gln Ala Glu Glu Ala Lys Ala Lys
    130   135   140

Gln Ala Ala Glu Ala Ala Lys Leu Lys Ala Asp Ala Glu Ala Lys Arg
145   150   155   160

Leu Ala Ala Ala Ala Lys Gln Ala Glu Glu Glu Ala Lys Ala Lys Ala
                165   170   175

Ala Glu Ile Ala Ala Gln Lys Ala Lys Gln Glu Ala Glu Ala Lys Ala
                180   185   190

Lys Leu Glu Ala Glu Ala Lys Ala Lys Ala Val Ala Glu Ala Lys Ala
        195   200   205

Lys Ala Glu Ala Glu Ala Lys Ala Lys Ala Ala Ala Glu Ala Lys Ala
    210   215   220

Lys Ala Asp Ala Glu Ala Lys Ala Ala Thr Glu Ala Lys Arg Lys Ala
225   230   235   240

Asp Gln Ala Ser Leu Asp Asp Phe Leu Asn Gly Gly Asp Ile Gly Gly
                245   250   255

Gly Ser Ala Ser Lys Gly Gly Asn Thr Asn Lys Gly Gly Thr Gln Gly
                260   265   270

Ser Gly Ala Ala Leu Gly Ser Gly Asp Gly Gly Lys Val Gly Asp Gln
                275   280   285

Tyr Ala Gly Val Ile Lys Lys Glu Ile Gln Arg Arg Phe Leu Lys Asp
    290   295   300

Pro Asn Phe Ala Gly Lys Val Cys Arg Ile Lys Ile Gln Leu Gly Arg
305   310   315   320

Asp Gly Thr Ile Leu Gly Tyr Gln Lys Ile Ser Gly Ser Asp Asp Ile
                325   330   335

Cys Ser Ala Ala Leu Ser Ala Val Ala Arg Thr Lys Lys Val Pro Ala
                340   345   350

Ala Pro Ser Asp Glu Ile Tyr Glu Lys Tyr Lys Ser Pro Ile Ile Asp
                355   360   365

Phe Asp Ile Arg
    370

<220>
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Met Phe Ser Leu Phe His His Pro Gln Leu Arg Pro Arg His Tyr Ala
1   5   10   15

Gly Gly Val Val Val Ile Ser Phe Ile Ile Leu Phe Tyr Gly Gly Ala
            20   25   30

Leu Ser Ser Ile Phe Ala Leu Gly Gly Glu Leu Gln Trp Arg Ala Trp
        35   40   45

Phe Thr Asp Asp Tyr Leu Gln His Leu Ile Leu Phe Ser Phe Gly Gln
    50   55   60

Ala Leu Leu Ser Thr Val Leu Ser Ile Phe Phe Gly Leu Leu Leu Ala
65   70   75   80

Arg Ala Leu Phe Tyr Lys Pro Phe Leu Gly Lys Lys Trp Leu Leu Lys
                85   90   95

Leu Met Ser Leu Thr Phe Val Leu Pro Ala Leu Val Val Ile Phe Gly
            100   105   110

Leu Ile Gly Ile Tyr Gly Ser Ser Gly Trp Leu Ala Trp Leu Ala Asn
        115   120   125

Leu Phe Gly Met Ser Trp Gln Gly His Ile Tyr Gly Leu Ser Gly Ile
    130   135   140

Leu Ile Ala His Leu Phe Phe Asn Ile Pro Leu Ala Ala Gln Leu Phe
145   150   155   160

Leu Gln Ser Leu Gln Ser Ile Pro Tyr Gln Gln Arg Gln Leu Ala Ala
                165   170   175

Gln Leu Asn Leu Gln Gly Trp Gln Phe Val Lys Leu Val Glu Trp Pro
            180   185   190

Val Phe Arg Gln Gln Cys Leu Pro Thr Phe Ser Leu Ile Phe Met Leu
        195   200   205

Cys Phe Thr Ser Phe Thr Val Val Leu Thr Leu Gly Gly Gly Pro Gln
    210   215   220

Tyr Thr Thr Leu Glu Thr Ala Ile Tyr Gln Ala Ile Leu Phe Glu Phe

Asp Leu Pro Lys Ala Ala Leu Phe Ala Met Leu Gln Phe Val Phe Cys
            245   250   255

Leu Ile Leu Phe Ser Leu Thr Ser Arg Phe Ser Leu Ser Asn Gln Asn
            260   265   270

Gly Leu Ser Asn Ser Asn Ile Trp Phe Glu Lys Pro Lys Ser Ala Val
            275   280   285

Lys Ile Phe His Ile Leu Val Leu Leu Val Phe Val Phe Phe Leu Phe
    290   295   300

Ser Pro Val Leu Asn Ile Leu Ile Ser Ala Leu Ser Ser Ser Asn Leu
305   310   315   320

Leu Thr Val Trp His Asn Ser Gln Leu Trp Arg Ala Leu Gly Tyr Ser
            325   330   335

Leu Ser Ile Ala Pro Leu Ser Ala Leu Leu Ala Leu Thr Met Ala Ile
            340   345   350

Ala Leu Leu Leu Leu Ser Arg Arg Leu Glu Trp Leu His Tyr Gln Lys
            355   360   365

Ile Ser Gln Phe Ile Ile Asn Ala Gly Met Val Ile Leu Ala Ile Pro
    370   375   380

Ile Leu Val Leu Ala Met Gly Leu Phe Leu Leu Leu Gln Asp Arg Asp
385   390   395   400

Phe Ser Asn Ile Asp Leu Phe Ile Ile Val Val Phe Cys Asn Ala Leu
            405   410   415

Ser Ala Met Pro Phe Val Leu Arg Ile Leu Ser Ala Pro Phe His Asn
            420   425   430

Asn Met Arg Tyr Tyr Glu Asn Leu Cys Asn Ser Leu Gly Ile Val Gly
            435   440   445

Trp Gln Arg Phe Tyr Leu Ile Glu Trp Lys Thr Leu Arg Ala Pro Leu
    450   455   460

Arg Tyr Ala Phe Ala Leu Gly Leu Ala Leu Ser Leu Gly Asp Phe Thr
465   470   475   480

Ala Ile Ala Leu Phe Gly Asn Gln Glu Phe Thr Ser Leu Pro His Leu
            485   490   495

Leu Tyr Gln Gln Leu Gly Asn Tyr Arg Asn Gln Asp Ala Ala Val Thr
            500   505   510

Ala Gly Ile Leu Leu Leu Leu Cys Gly Ile Leu Phe Ala Phe Ile His
            515   520   525

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Thr Tyr Arg Asp Ala Asp Asp Leu Ser Lys
    530   535

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Met Ile Phe Leu Glu Ile Ile Lys Arg Glu Leu Gln Ile Ala Met Arg
1   5   10   15

Lys Asn Ala Glu Ile Leu Asn Pro Leu Trp Phe Phe Leu Leu Val Ile
            20   25   30

Thr Leu Phe Pro Leu Val Ile Gly Pro Asp Pro Lys Leu Leu Ser Arg
        35   40   45

Ile Ala Pro Gly Ile Ala Trp Val Ala Ala Leu Leu Ser Ala Leu Leu
    50   55   60

Ser Phe Glu Arg Leu Phe Arg Asp Asp Phe Ile Asp Gly Ser Leu Glu
65   70   75   80

Gln Leu Met Leu Thr Ala Gln Pro Leu Pro Met Thr Ala Leu Ala Lys
            85   90   95

Val Val Ala His Trp Leu Leu Thr Gly Leu Pro Leu Ile Leu Leu Ser
            100   105   110

Pro Ile Ala Ala Leu Leu Leu Ser Leu Glu Val Asn Ile Trp Trp Ala
    115   120   125

Leu Val Leu Thr Leu Leu Leu Gly Thr Pro Val Leu Ser Cys Ile Gly
    130   135   140

Ala Ile Gly Val Ala Leu Thr Val Gly Leu Arg Lys Gly Gly Val Leu
145   150   155   160

Leu Ser Leu Leu Val Val Pro Leu Phe Ile Pro Val Leu Ile Phe Ala
            165   170   175

Ser Ser Val Leu Glu Ala Ala Gly Leu Asn Val Pro Tyr Gly Gly Gln

Leu Ala Ile Leu Gly Ala Met Met Val Gly Ala Val Thr Leu Ser Pro
        195   200   205

Phe Ala Ile Ala Ala Ala Leu Arg Ile Ser Leu Asp Asn
    210   215   220

<210> 11
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<213> H. influenzae

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<220>
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Met Lys Leu Asn Leu Ile Thr Leu Val Val Leu Leu Ile Val Ala Asp
1   5   10   15

Leu Thr Leu Leu Phe Leu Pro Gln Pro Leu Leu Leu Pro Trp Gln Val
            20   25   30

Ala Leu Val Ile Ala Leu Val Leu Ile Phe Leu Phe Ile Phe Leu Arg
            35   40   45

Arg Asn Phe Leu Val Ser Leu Ala Phe Phe Val Ala Ser Leu Gly Tyr
    50   55   60

Phe His Tyr Ser Ala Leu Ser Leu Ser Gln Gln Ala Gln Asn Ile Thr
65   70   75   80

Ala Gln Lys Gln Val Val Thr Phe Lys Ile Gln Glu Ile Leu His Gln
                85   90   95

Gln Asp Tyr Gln Thr Leu Ile Ala Thr Ala Thr Leu Glu Asn Asn Leu
            100   105   110

Gln Glu Gln Arg Ile Phe Leu Asn Trp Lys Ala Lys Glu Val Pro Gln
            115   120   125

Leu Ser Glu Ile Trp Gln Ala Glu Ile Ser Leu Arg Ser Leu Ser Ala
    130   135   140

Arg Leu Asn Phe Gly Gly Phe Asp Arg Gln Gln Trp Tyr Phe Ser Lys
145   150   155   160

Gly Ile Thr Ala Val Gly Thr Val Lys Ser Ala Val Lys Ile Ala Asp
            165   170   175

Val Ser Ser Leu Arg Ala Glu Lys Leu Gln Gln Val Lys Lys Gln Thr
           180   185   190

Glu Gly Leu Ser Leu Gln Gly Leu Leu Ile Ala Leu Ala Phe Gly Glu
          195   200   205

Arg Ala Trp Leu Asp Lys Thr Thr Trp Ser Ile Tyr Gln Gln Thr Asn
  210   215   220

Thr Ala His Leu Ile Ala Ile Ser Gly Leu His Ile Gly Leu Ala Met
225   230   235   240

Gly Ile Gly Phe Cys Leu Ala Arg Val Val Gln Val Phe Phe Pro Thr
          245   250   255

Arg Phe Ile His Pro Tyr Phe Pro Leu Val Phe Gly Val Leu Phe Ala
          260   265   270

Leu Ile Tyr Ala Tyr Leu Ala Gly Phe Ser Val Pro Thr Phe Arg Ala
          275   280   285

Ile Ser Ala Leu Val Phe Val Leu Phe Ile Gln Ile Met Arg Arg His
          290   295   300

Tyr Ser Pro Ile Gln Phe Phe Thr Leu Val Val Gly Phe Leu Leu Phe
305   310   315   320

Cys Asp Pro Leu Met Pro Leu Ser Val Ser Phe Trp Leu Ser Cys Gly
          325   330   335

Ala Val Gly Cys Leu Leu Leu Trp Tyr Arg Tyr Val Pro Phe Ser Leu
          340   345   350

Phe Gln Trp Lys Asn Arg Pro Phe Ser Pro Lys Val Arg Trp Ile Phe
          355   360   365

Ser Leu Phe His Leu Gln Phe Gly Leu Leu Leu Phe Phe Thr Pro Leu
          370   375   380

Gln Leu Phe Leu Phe Asn Gly Leu Ser Leu Ser Gly Phe Leu Ala Asn
385   390   395   400

Phe Met Ala Val Pro Ile Tyr Ser Phe Leu Leu Val Pro Leu Ile Leu
          405   410   415

Phe Ala Val Phe Thr Asn Gly Thr Met Phe Ser Trp Gln Leu Ala Asn
          420   425   430

Lys Leu Ala Glu Gly Ile Thr Gly Leu Ile Ser Val Phe Gln Gly Asn
          435   440   445

Trp Leu Thr Val Ser Phe Asn Leu Ala Leu Gly Leu Thr Ala Leu Cys

Ala Gly Ile Phe Met Leu Ile Ile Trp Asn Ile Tyr Arg Glu Pro Glu
465   470   475   480

Ile Ser Ser Ser Asn Trp Gln Ile Lys Arg Ala Lys Phe Phe Thr Leu
                    485   490   495

Asn Leu Ser Lys Pro Leu Leu Lys Asn Glu Arg Ile Asn Val Leu Arg
                500   505   510

Cys Ser Phe Gly Ile Ile Leu Leu Cys Phe Thr Ile Leu Leu Phe Lys
                515   520   525

Gln Leu Ser Lys Pro Thr Trp Gln Val Asp Thr Leu Asp Val Gly Gln
            530   535   540

Gly Leu Ala Thr Leu Ile Val Lys Asn Gly Lys Gly Ile Leu Tyr Asp
545   550   555   560

Thr Gly Ser Ser Trp Arg Gly Gly Ser Met Ala Glu Leu Glu Ile Leu
                    565   570   575

Pro Tyr Leu Gln Arg Glu Gly Ile Val Leu Glu Lys Leu Ile Leu Ser
                580   585   590

His Asp Asp Asn Asp His Ala Gly Gly Ala Ser Thr Ile Leu Lys Ala
                595   600   605

Tyr Pro Asn Val Glu Leu Ile Thr Pro Ser Arg Lys Asn Tyr Gly Glu
                610   615   620

Asn Tyr Arg Thr Phe Cys Thr Ala Gly Arg Asp Trp His Trp Gln Gly
625   630   635   640

Leu His Phe Gln Ile Leu Ser Pro His Asn Val Val Thr Arg Ala Asp
                    645   650   655

Asn Ser His Ser Cys Val Ile Leu Val Asp Asp Gly Lys Asn Ser Val
                660   665   670

Leu Leu Thr Gly Asp Ala Glu Ala Lys Asn Glu Gln Ile Phe Ala Arg
                675   680   685

Thr Leu Gly Lys Ile Asp Val Leu Gln Val Gly His His Gly Ser Lys
                690   695   700

Thr Ser Thr Ser Glu Tyr Leu Leu Ser Gln Val Arg Pro Asp Val Ala
705   710   715   720

Ile Ile Ser Ser Gly Arg Trp Asn Pro Trp Lys Phe Pro His Tyr Ser
                    725   730   735

Val Met Glu Arg Leu His Arg Tyr Lys Ser Ala Val Glu Asn Thr Ala
                740   745   750

Val Ser Gly Gln Val Arg Val Asn Phe Phe Gln Asp Arg Leu Glu Ile
        755   760   765

Gln Gln Ala Arg Thr Lys Phe Ser Pro Trp Tyr Ala Arg Val Ile Gly
    770   775   780

Leu Ser Lys Glu
785

<210> 12
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<213> H. pylori

<220>
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<223> poly E-rich protein

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<223> gi|2313421

<400> 12

Met Lys Met Ile Leu Phe Asn Gln Asn Pro Met Ile Thr Lys Leu Leu
1   5   10   15

Glu Ser Val Ser Lys Lys Leu Glu Leu Pro Ile Glu Asn Phe Asn His
            20   25   30

Tyr Gln Glu Leu Ser Ala Arg Leu Lys Glu Asn Gln Glu Trp Leu Leu
        35   40   45

Ile Ala Asp Asp Glu Cys Leu Glu Lys Leu Asp Gln Val Asp Trp Leu
    50   55   60

Glu Leu Lys Glu Thr Ile Ser Gln Asn Lys Asn Ser Val Cys Met Tyr
65   70   75   80

Lys Lys Gly Asn Glu Ala Gln Pro Phe Leu Glu Gly Phe Glu Val Lys
            85   90   95

Ile Lys Lys Pro Phe Leu Pro Thr Glu Met Leu Lys Val Leu Gln Lys
            100   105   110

Lys Leu Gly Ser Asn Ala Ser Glu Leu Glu Pro Ser Gln Asn Leu Asp
        115   120   125

Pro Thr Gln Glu Val Leu Glu Thr Asn Trp Asp Glu Leu Glu Asn Leu
    130   135   140

Gly Asp Leu Glu Ala Leu Val Gln Glu Glu Pro Asn Asn Glu Glu Gln

Leu Leu Pro Thr Leu Asn Asp Gln Glu Glu Lys Glu Glu Val Lys Glu
                165   170   175

Glu Glu Lys Glu Glu Val Lys Glu Glu Glu Lys Glu Glu Val Lys Glu
            180   185   190

Glu Glu Lys Glu Glu Val Lys Glu Thr Pro Gln Glu Glu Lys Lys Pro
            195   200   205

Lys Asp Asp Glu Thr Gln Glu Gly Glu Thr Leu Lys Asp Lys Glu Val
        210   215   220

Ser Lys Glu Leu Glu Ala Pro Gln Glu Leu Glu Ile Pro Lys Glu Glu
225   230   235   240

Thr Gln Glu Gln Asp Pro Ile Lys Glu Glu Thr Gln Glu Asn Lys Glu
                245   250   255

Glu Lys Gln Glu Lys Thr Gln Asp Ser Pro Ser Ala Gln Glu Leu Glu
            260   265   270

Ala Met Gln Glu Leu Val Lys Glu Ile Gln Glu Asn Ser Asn Gly Gln
        275   280   285

Glu Asn Lys Glu Lys Thr Gln Glu Ser Ala Glu Ile Pro Gln Asp Lys
    290   295   300

Glu Ile Gln Glu Val Val Thr Glu Lys Thr Gln Ala Gln Glu Leu Glu
305   310   315   320

Val Pro Lys Glu Lys Thr Gln Glu Ser Ala Glu Ala Leu Gln Glu Thr
            325   330   335

Gln Ala His Glu Leu Glu Lys Gln Glu Ile Ala Glu Thr Pro Gln Asp
        340   345   350

Val Glu Ile Pro Gln Ser Gln Asp Lys Glu Val Gln Glu Leu Glu Ile
    355   360   365

Pro Lys Glu Glu Thr Gln Glu Asn Thr Glu Thr Pro Gln Asp Val Glu
    370   375   380

Thr Pro Gln Glu Lys Glu Thr Gln Glu Asp His Tyr Glu Ser Ile Glu
385   390   395   400

Asp Ile Pro Glu Pro Val Met Ala Lys Ala Met Gly Glu Glu Leu Pro
            405   410   415

Phe Leu Asn Glu Ala Val Ala Lys Ile Pro Asn Asn Glu Asn Asp Thr
        420   425   430

Glu Thr Pro Lys Glu Ser Val Thr Glu Thr Ser Lys Asn Glu Asn Asn
        435   440   445

Thr Glu Thr Pro Gln Glu Lys Glu Glu Ser Asp Lys Thr Ser Ser Pro
    450   455   460

Leu Glu Leu Arg Leu Asn Leu Gln Asp Leu Leu Lys Ser Leu Asn Gln
465   470   475   480

Glu Ser Leu Lys Ser Leu Leu Glu Asn Lys Thr Leu Ser Ile Lys Ile
                485   490   495

Thr Leu Glu Asp Lys Lys Pro Asn Ala
                500   505

<210> 13
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<213> H. pylori

<220>
<221> misc_feature
<223> histidine-rich, metal binding polypeptide (hpn)

<220>
<221> misc_feature
<223> gi|2314604

<400> 13

Met Ala His His Glu Glu Gln His Gly Gly His His His His His His
1   5   10   15

His Thr His His His His Tyr His Gly Gly Glu His His His His His
                20   25   30

His Ser Ser His His Glu Glu Gly Cys Cys Ser Thr Ser Asp Ser His
        35   40   45

His Gln Glu Glu Gly Cys Cys His Gly His His Glu
    50   55   60

<210> 14
<211> 72
<212> PRT
<213> H. pylori

<220>
<221> misc_feature
<223> histidine and glutamine-rich protein

<220>
<221> misc_feature
<223> gi|2314605

<400> 14

Met Ala His His Glu Gln Gln Gln Gln Gln Gln Ala Asn Ser Gln His
1   5   10   15

His His His His His Ala His His His His Tyr Tyr Gly Gly Glu His
            20   25   30

His His His Asn Ala Gln Gln His Ala Glu Gln Gln Ala Glu Gln Gln
        35   40   45

Ala Gln Gln Gln Gln Gln Gln Gln Ala His Gln Gln Gln Gln Gln Lys
    50   55   60

Ala Gln Gln Gln Asn Gln Gln Tyr
65   70

<210> 15
<211> 1139
<212> PRT
<213> M. genitalium

<220>
<221> misc_feature
<223> cytadherence-accessory protein

<220>
<221> misc_feature
<223> gi|1046012

<400> 15

Met Ala Lys Asn Lys Gln Ser Val Phe Glu Glu Lys Asn Tyr Thr Gln
1   5   10   15

Thr Glu Pro Glu Asn Ile Phe Gly Asp Leu Tyr Asp Gly Lys Ser Thr
            20   25   30

Val Glu Glu Asp Pro Asn Ile Lys Val Ala Tyr Asp Ala Asp Gly Asn
        35   40   45

Gly Tyr Tyr Ile Ala Phe Asn Lys Glu Thr Gly Val Tyr Tyr Asp Pro
    50   55   60

Tyr Gly Asp Thr Glu Tyr Asp Ile Ser Gln Leu Phe Asp Glu Asn Gly
65   70   75   80

Asn Pro Phe Val Phe Asp Glu Lys Gln Glu Glu Asn Asp Tyr Leu Lys
                85   90   95

Tyr Val Gly Asn Pro Asp Tyr Gly Ser Tyr Asp Glu Asn Gly Glu Trp

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Val Trp Ser Gly Tyr Phe Glu Asn Asp Gln Trp Ile Ser Thr Lys Glu
        115   120   125

Ser Gln Pro Thr Asp Glu Asn Tyr Gly Phe Asp Ser Asp Leu Pro Pro
        130   135   140

Glu Val Lys Gln Pro Glu Ser Val Glu Asp Asn Tyr Gly Phe Asp Asn
·145   150   155   160

Asp Leu Pro Pro Glu Val Lys Gln Pro Glu Ser Val Glu Asp Asn Tyr
                165   170   175

Gly Phe Asp Asn Asp Leu Pro Pro Glu Val Lys Gln Pro Glu Ser Val
                180   185   190

Val Asp Gln Pro Ser Ser Asp Asp Tyr Phe Ala Lys Gln Pro Thr Asp
        195   200   205

Glu Asn Tyr Gly Phe Asp Asn Asp Leu Pro Pro Glu Val Lys Gln Pro
        210   215   220

Glu Ser Val Val Asp Gln Pro Ser Ser Asp Asp His Phe Ala Lys Gln
225   230   235   240

Pro Glu Ser Thr Thr Asp Ser Tyr Ser Phe Asp Ser Asp Leu Pro Gln
                245   250   255

Pro Thr Leu Asp Gln Pro Ser Leu Asp Asp His Val Gln Tyr Asn Phe
                260   265   270

Asp His His Glu Glu Leu Lys Pro Val Ala Glu Glu Gln Asn Asn Tyr
                275   280   285

Gln Val Gly Phe Asp Gln Val Gln Ala Asn Leu Asp Asn Asn Glu Glu
        290   295   300

Ile Gln Pro Thr Ala Glu Lys Lys Val Thr Thr Asp Phe Glu Ser Lys
305   310   315   320

Gln Ala Gln Val Val Asp Ser Tyr Gln Leu Pro Ile Asp Thr Asp Gln
                325   330   335

Gln Asp Gln Thr Thr Phe Ser Ser Ser Phe Glu Thr Gln Pro Thr Val
                340   345   350

Glu Gln Phe Asp Gln Val Asn Ser Glu Val Asn Asp Gln Phe Lys Pro
                355   360   365

Glu Ile Thr Lys Glu Pro Val Leu Glu Ser Ser Phe Asn Lys Gln Asp
        370   375   380

Val Val Glu Thr Ser Asp Leu Asn Ser Glu Ser Asn Leu Tyr Ser Glu
385   390   395   400

```
Asn Asn Lys Asp Ala Thr Asn Asn Asp Ser Leu Asn Ser Glu Phe Ile
            405                 410                 415

Gln Leu Asn Ser Asn Ser Glu Thr Ala Ser Asp Asp Val His Tyr Glu
            420                 425                 430

Ser Lys Ser Glu Pro Ile His Asp Tyr Lys Phe Gly Ser Asp Leu Ser
            435                 440                 445

Gln Ser Asn Ser Asn Asn Ser Leu Glu Ser Glu Pro Val Lys Phe Asn
    450                 455                 460

Ser Glu Thr Ala Pro Asp Ala His Phe Glu Ser Gln Ser Glu Pro Val
465                 470                 475                 480

Asp Gln Val Gln Tyr Asp Ile Tyr Gln Asn Glu Glu Leu Lys Pro Thr
                485                 490                 495

Leu Asp Gln Pro Ser Ser Asp Asp Tyr Phe Ala Lys Gln Pro Thr Asp
            500                 505                 510

Glu Asn Tyr Gly Phe Asp Asn Asp Leu Pro Pro Glu Val Lys Gln Pro
            515                 520                 525

Glu Ser Val Val Asp Gln Pro Ser Ser Asp Asp His Phe Ala Lys Gln
    530                 535                 540

Pro Glu Ser Thr Thr Asp Ser Tyr Ser Phe Asp Ser Asp Leu Pro Gln
545                 550                 555                 560

Pro Thr Leu Asp Gln Pro Ser Leu Asp Asp His Val Gln Tyr Asn Phe
            565                 570                 575

Asp His His Glu Glu Leu Lys Pro Val Ala Glu Glu Gln Asn Asn Tyr
            580                 585                 590

Gln Val Gly Phe Asp Gln Val Gln Ala Asn Leu Asp Asn Asn Glu Glu
            595                 600                 605

Ile Gln Pro Thr Ala Glu Lys Glu Val Thr Thr Asp Phe Glu Ser Lys
    610                 615                 620

Gln Ala Gln Val Val Asp Ser Tyr Gln Leu Pro Ile Asp Thr Asp Gln
625                 630                 635                 640

Gln Asp Gln Thr Thr Phe Ser Ser Ser Phe Glu Thr Gln Pro Thr Val
            645                 650                 655

Glu Gln Phe Asp Gln Val Asn Ser Glu Val Asn Asp Gln Phe Lys Pro
            660                 665                 670

Glu Ile Thr Lys Glu Pro Val Leu Glu Ser Ser Phe Asn Lys Gln Asp
            675                 680                 685
```

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Val Val Glu Thr Ser Asn Tyr Thr Asn Asn Leu Gln Lys Phe Asp Ile
    690   695   700

Gln Ser Asp Asn Lys Ile Thr Ile Thr Thr Lys Lys Ser Ser Pro Gln
705   710   715   720

Ile Pro Thr Thr Leu Pro Ile Ser Phe Val Ser Asn Arg Ile Glu Tyr
                725   730   735

Lys Pro Val Glu Thr Leu Ala Leu Asp Asn Lys Glu Ser Gln Gln Glu
            740   745   750

Gln Ile Thr Ile Asn Ser Ile Thr Glu Asp Ser Lys Thr Leu Ala Lys
        755   760   765

Thr Leu Ser Val Gln Leu Gln Gln Ile Asn Ser Leu Asn Asn Gln Ser
        770   775   780

Ile Val Thr Ser Glu Ser Val Arg Leu Asp Lys Lys Asp Asp Gln Leu
785   790   795   800

Thr Ile Asn Thr Val Asn Ser Glu Asp Gln Gln Pro Lys Ile Glu Val
                805   810   815

Phe Val Lys Ala Lys Glu Pro Val Glu Glu His Ser Ile Thr Gln Asn
            820   825   830

Lys Gln Ser Val Glu Asp Lys Ser Glu Leu Asp Asn Phe Asn Lys Lys
            835   840   845

Ser Asp Leu Tyr Lys Ile Ile Ser Glu Leu Lys Arg Gly Glu Leu Asn
    850   855   860

Pro Thr Ile Asn Phe Asp Ala Ile Phe Gln Met Asn Asp Tyr Gln Met
865   870   875   880

Ser Val Lys Gln Ser Phe Ile His Leu Asn Asp Phe Val Thr Asn Tyr
                885   890   895

Lys Asn Gln Ile Ser Glu Arg Tyr Leu Ile Ile Lys Lys Glu Leu Gln
                900   905   910

Ser Glu Leu Ser Arg Leu Ile Asp Gln Asn Glu Asn Leu .Asn Val Gln
            915   920   925

Phe Asn Asn Ala Lys Asn Leu Thr Thr Leu Gln Lys Glu Glu Met Ile
    930   935   940

Arg Ser Leu Ala Ser Asp Phe Ala Ile Ala Tyr Lys Pro Ser Asn Ser
945   950   955   960

Tyr Glu Gln Leu Gln Lys Ser Gly Glu Ile Met Arg His Val Gln Arg
                965   970   975

Ala Ile Thr Glu Asn Glu Lys Lys Ile Glu Ser Ile Gln Gly Ser Leu

Lys Gln Leu Lys Thr Val Tyr Asn Ser Cys Cys Glu Thr Ile Met Asn
        995   1000   1005

Asn Ile Asn Lys Leu Asp Asn Thr Leu Arg Phe Ala Lys Lys Glu
        1010   1015   1020

Lys Asp Pro Leu Leu Leu Ser Asn Phe Asp Ser Val Thr Asp Asn
        1025   1030   1035

Gly Leu Val Glu Pro Asn Gln Leu Met Asp Asp Leu Ile Asp Phe
        1040   1045   1050

Ser Asn Thr Phe Asp Asn Ile Ser Asn Glu Gln Leu Asp Asp Phe
        1055   1060   1065

Ile Tyr Glu Asn Met Asp Arg Asn Ile Asp Phe Glu Phe Glu Gly
        1070   1075   1080

Phe Asn Asn Asp Phe Val Asp Ile Asp Ala Lys Val Met Asp Ser
        1085   1090   1095

Met Ser Ala Phe Ser Val Asn Asp Leu Asp Ile Glu Thr Leu Val
        1100   1105   1110

Pro Asp Arg Thr Ser Asn Phe Ser Ser Leu Leu Asp Glu Asp Leu
        1115   1120   1125

Phe Glu Ser Ser Gly Asp Phe Ser Leu Asp Tyr
        1130   1135

<210> 16
<211> 1616
<212> PRT
<213> M. genitalium

<220>
<221> misc_feature
<223> cytadherence-accessory protein

<220>
<221> misc_feature
<223> gi|1046097

<400> 16

Met Pro Lys Thr Thr Lys Asn Lys Asn Lys Asn Thr Thr Pro Lys Ser
1   5   10   15

Lys Thr Lys Lys Tyr Leu Glu Ser Ala Asn Lys Lys Ser Val Thr Lys
            20   25   30

```
Pro Lys Lys Glu Gln Asp Lys Val Glu Asn Leu Phe Asp Gln Pro Phe
    35                  40                  45

Leu Gly Glu Ile Lys Lys Asn Ile Leu Lys Lys Thr Lys Ser Phe Asn
    50                  55                  60

Ser Lys Lys Lys Glu Thr Val Lys Ser Lys Ser Lys Ser Pro Ile Asp
65                  70                  75                  80

Phe Phe Asp Glu Thr Lys Arg Gly Val Phe Ile Val Pro Pro Glu Thr
                85                  90                  95

Asp Ile Leu Ser Arg Arg Glu Leu Asn Gln Lys Thr Val Val Asn Thr
                100                 105                 110

Val Pro Asn Gln Thr Ser Ser Tyr Pro Thr Ile Asn Glu Asn Lys Leu
        115                 120                 125

Val Glu Leu Asn Asn Gln Pro Glu Thr Lys Val Leu Glu Thr Lys Lys
    130                 135                 140

Asp Ser Phe Thr Thr Thr Ile Arg Glu Lys Lys Leu Asn Pro Glu Asp
145                 150                 155                 160

Ser Gln Ala Phe Trp Tyr Ile Phe Val Gly Asp Arg Lys Tyr Gly Phe
                165                 170                 175

Trp Lys Asn His Thr Trp Val Trp Leu Gly Tyr Phe Asp Gln Leu Gln
            180                 185                 190

Arg Trp Asn Tyr Phe Lys Val Ile Glu Thr Val Glu Val Pro Gln Glu
            195                 200                 205

His Ala Ala Phe Ile Lys Gln Arg Pro Ala Asp Ile Asp Phe Trp Arg
    210                 215                 220

Pro Leu Val Gly Asn Pro Asn Tyr Gly Phe Val Gln Asn Asn Thr Trp
225                 230                 235                 240

Ile Trp Lys Gly Phe Phe Asp Lys Lys Leu Asn Trp Ile Pro Asp Pro
                245                 250                 255

Val Arg Phe Thr Glu Glu Ala Leu Gly His Thr Asp Ser Leu Val Asp
            260                 265                 270

Glu Ile Glu Lys Lys Thr Ile Ser Glu Gln Pro Tyr Trp Glu Gln Glu
            275                 280                 285

Asn Asp Ile Val Val Thr Val Phe Asn Thr Lys Ser Leu Ala Ser Ser
    290                 295                 300

Leu Glu Asn Glu Leu Leu Leu Glu Asn Ser Ser Glu Glu Gln Pro Val
305                 310                 315                 320

Ile Glu Glu Val Lys Pro Arg Arg Asn Glu Val Ile Phe Arg Asn Pro
```

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Val Thr Lys Leu His Phe Glu Lys Glu Lys Phe Glu Phe Leu Asn Pro
            340   345   350

Val Lys Glu Thr Asn Glu Thr Ile Pro Leu Ile Glu Ile Val Lys Glu
        355   360   365

Glu Val Lys Val Glu Ser Glu Val Glu Ala Pro Val Glu Ile Glu Pro
    370   375   380

Glu Ala Ala Cys Glu Pro Glu Thr Thr Ile Pro Glu Val Glu Thr Val
385   390   395   400

Phe Val Tyr Glu Asp Asp Leu Lys Gly Leu Asp Ser Asn Gln Thr Gln
            405   410   415

Ala Gly Asn Val Pro Glu Val Glu Thr Val Phe Val Tyr Glu Asp Asp
            420   425   430

Leu Lys Gly Leu Asp Ser Ile Ile Lys Asp Asp Gln Gln His Asp Glu
        435   440   445

Ile Ala Lys His Val Glu His Leu Ser Gln Asp Tyr Ser Lys Glu Ile
    450   455   460

Lys Asp Ser Ala Lys Ala Asp Leu Ser Asn Ile Ser Asp Asp Ile Asp
465   470   475   480

Ser Val Trp Lys Glu Phe Gly Ser Phe Thr Asp Glu Thr Gln Lys Ser
            485   490   495

Val Glu Glu Lys Ser Gln Val Asp Glu Ile Ile Leu Asp Ala Asn Asn
        500   505   510

Asp Phe Ile Asn Glu Ser Leu Phe Arg Asp Glu Val Val Asn Asn Ile
        515   520   525

Asp Ser Gln Ile Asn Glu Thr Val Ser Glu Gln Gln Phe Glu Pro Thr
        530   535   540

Tyr Ser Val Asn Glu Phe Gln Gln Glu Phe Ser Glu Pro Val Val Ser
545   550   555   560

Asp Glu Lys Ile Lys Glu Thr Asn Ser Asp Glu Ser Val Asn Thr Asp
            565   570   575

Leu Thr Ala Leu Phe Ser Glu Lys Leu Val Asn Glu Val Leu Leu Thr
        580   585   590

Asn Glu Tyr Val Asp Val Asn Ala Pro Phe Ser Thr Glu Thr Glu Val
        595   600   605

Lys Val Ser Ser Glu Leu Pro Lys Ser Glu Leu Val Asp Glu Ile Thr
    610   615   620

Phe Ile Asn Asn Asp Pro Lys Pro Gln Glu Gly Leu Glu Tyr Lys Val
625   630   635   640

Asp Phe Leu Glu Thr Glu Pro Lys Ser Leu Phe Asp Glu Lys Thr Thr
                645   650   655

Ile Val Val Glu Ser Glu Pro Pro Phe Ile Gln Pro Asp Leu Ser Leu
            660   665   670

Glu Leu Asp Ser Val Asn Asp Val Asp Lys Ser Leu Glu Thr Lys Thr
        675   680   685

Thr Ser Val Glu Leu Asn His Glu Glu Ile Gly Asn Glu Phe Ile Asn
    690   695   700

Leu Asp Val Ser Glu Lys Glu Val Gln Glu Gln Pro Thr Thr Gln Leu
705   710   715   720

Glu Thr Asp Ser Glu Phe Val Leu Pro Thr Tyr Gln Ile Val Glu Asp
            725   730   735

Ser Phe Thr Glu Ser Ala Glu Thr Pro Asn Glu Phe Ser Ser Glu Gln
            740   745   750

Lys Asp Thr Leu Glu Phe Ile Ser Gln Thr Gln Glu Val Glu Thr Ser
        755   760   765

Glu Ser Asn Val Pro Thr Val Glu Gln Glu Thr Lys Leu Phe Glu His
    770   775   780

Gln Asp Glu Asn Asn Leu Phe Thr Pro Leu Pro Leu Asp Leu Thr Glu
785   790   795   800

Ile Ile Glu Ser Asn Ala Leu Phe Asp Ser Lys Pro Asp Glu Lys Glu
            805   810   815

Ser Ser Asp Ser Glu Leu Gln Pro Thr Phe Lys Glu Ile Lys Leu Asp
        820   825   830

Ser Thr Val Glu Val Pro Gln Glu Ser Ser Gln Val Glu Ala Thr Phe
        835   840   845

Asp Thr Val Gln Pro Glu Ala Val Phe Asp Glu Ile Lys Thr Gln Glu
    850   855   860

Leu Gln Pro Glu Ala Thr Thr Glu Val Val Phe Asp Asp His Phe Gln
865   870   875   880

Pro Asp Val Gln Pro Glu Gln Thr Pro Gln Glu Ala Lys Phe Asp Ser
            885   890   895

Pro Val Glu Ile Pro Gln Glu Ser Ser Gln Ala Glu Phe His Ala Glu
            900   905   910

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Gln Ile Ser Asp Glu Ile Lys Leu Glu Glu Lys Thr Glu Ala Val Phe
          915   920   925

Asp His Gln Gln Leu Glu Asn Gln Ser Glu Glu Thr Val Val Thr Pro
          930   935   940

Thr Glu Val Thr Ala Phe Glu Pro Glu Thr Ile Glu Thr Gln Leu Glu
945   950   955   960

Pro Ser Ser Glu Asp Gln Pro Ser Glu Pro Ala Leu Asp Gln Asn His
                  965   970   975

Pro Glu Ile Val Thr Ala Glu Val Glu Gln Ile Phe Asp Gly Thr Lys
              980   985   990

Leu Glu Asp Leu Lys Leu Glu Glu Ala Asn Phe Asp Asn Val Glu Asn
          995   1000   1005

Asn Glu Val Gln Pro Lys Glu Thr Glu Ala Glu Ile Thr Phe Asp
    1010   1015   1020

Glu Thr Lys Glu Leu Gln Gln Glu Thr Ser Ser Glu Pro Leu Ser
    1025   1030   1035

Thr Glu Glu Leu Lys Ser Glu Ala Thr Phe Asp Asn Val Ser Glu
    1040   1045   1050

Ala Glu Ser Glu Ala Val Phe Glu Lys Pro Gln Leu Glu Thr Gln
    1055   1060   1065

Thr Glu Lys Ile Leu Glu Glu Glu Pro Lys Ser Glu Pro Val Asp
    1070   1075   1080

Gln Leu Ile Thr Glu Ala Ser Phe Asp Thr Val Lys His Glu Ala
    1085   1090   1095

Val Phe Asp Lys Asn Gln Thr Gln Thr Glu Gly Leu Glu Glu Pro
    1100   1105   1110

Gln Val Ser Ser Glu Ala Glu Val Val Asp Gln Thr Thr Thr Asp
    1115   1120   1125

Thr Val Gly Glu Pro Glu Ala Val Phe Asp Val Gln Pro Glu Lys
    1130   1135   1140

Thr Thr Glu Val Lys Phe Asp Asp Val Glu Asn Gln Gln Lys Val
    1145   1150   1155

Ile Ser Glu Pro Gln Val Glu Gln Gln Pro Gly Glu Ala Val Phe
    1160   1165   1170

Glu Pro Ser Ala Glu Ala Lys Phe Asp Ser Pro Val Glu Ser Val
    1175   1180   1185

Gln Asp Ser Gln Pro Glu Pro Val Leu Glu Glu Val Gln Thr Gln

Pro Glu Ile Gln Pro Val Glu Ser Gln Pro Glu Ala Thr Phe Asp
    1205   1210   1215

Thr Val Gln Pro Glu Gln Thr Pro Gln Glu Ala Lys Phe Asp Ser
    1220   1225   1230

Pro Val Glu Thr Val Glu Gln Pro Glu Phe Ser Ser Glu Pro Thr
    1235   1240   1245

Gln Gln His Val Glu Ser Glu Ala Ser Phe Asp Glu Pro Asn Tyr
    1250   1255   1260

Asp Phe Asp Glu Pro Asn Tyr Asp Phe Asp Gln Pro Ser Tyr Asp
    1265   1270   1275

Ser Asp Leu Gln Pro Ser Glu Pro Gln Tyr Asp Val Asp Glu Pro
    1280   1285   1290

Asn Tyr Asp Phe Asp Glu Pro Asn Tyr Glu Ile Glu Ser Lys Pro
    1295   1300   1305

Ser Glu Pro Gln Phe Glu Pro Gln Val Glu Gln Gln Pro Gly Glu
    1310   1315   1320

Ala Val Phe Glu Pro Ser Ala Glu Ala Lys Phe Asp Ser Pro Val
    1325   1330   1335

Glu Ser Val Gln Asp Ser Gln Pro Glu Pro Leu Leu Glu Glu Val
    1340   1345   1350

Gln Thr Gln Pro Glu Ile Gln Pro Val Glu Ser Gln Pro Glu Ala
    1355   1360   1365

Thr Phe Asp Thr Val Gln Pro Glu Gln Thr Pro Gln Glu Ala Lys
    1370   1375   1380

Phe Asp Ser Pro Val Glu Thr Ile Gln Glu Pro Gln Val Ser Ser
    1385   1390   1395

Glu Pro Glu Val Val Val Gln Pro Asn Phe Glu Glu Arg Lys Pro
    1400   1405   1410

Glu Thr Val Leu Glu Glu Pro Gln Ala Asp Glu Ile Gln Pro Glu
    1415   1420   1425

Ala Ser Glu Glu Glu Ser Leu Asp Trp Glu Leu Leu Val Gly Asn
    1430   1435   1440

Asn Ser Tyr Gly His Tyr Glu Pro Asp Gly Glu Trp Val Trp Ala
    1445   1450   1455

Gly Phe Phe Gly Asp Asp Gln Lys Trp Asn Lys Asp Ala Thr Val
    1460   1465   1470

```
Lys Trp  Ala Arg Glu Arg Asp  Tyr Leu Pro Leu Ile  Gly Asp Glu
    1475             1480             1485

Val Tyr  Gly Arg Tyr Asn Asn  Lys Gly Glu Trp Ile  Trp Tyr Gly
    1490             1495             1500

Phe Tyr  Asp Glu Ser Gly Asp  Trp Val Leu Val Asp  Glu Gln Trp
    1505             1510             1515

Lys Asn  Arg Gln Pro Arg Ile  Asn Glu Ala Pro Lys  Phe Trp Glu
    1520             1525             1530

Lys Leu  Ile Gly Asn Glu Glu  Tyr Gly Tyr Tyr Glu  Asp Asn Glu
    1535             1540             1545

Trp Asn  Trp Tyr Asp Gly Glu  Phe Asp Ser Glu Gly  Asn Trp Leu
    1550             1555             1560

Val Phe  Gln Ser Glu Glu Thr  Glu Asn Leu Asn Glu  Asp Ile Thr
    1565             1570             1575

Lys Asp  Ile Pro Ala Leu Glu  Gly Tyr Asp Ile Asp  Ser Ile Asp
    1580             1585             1590

Ala Asp  Glu Trp Leu Ser Gln  Phe Ser Ala Asp Asp  Ala Lys Asp
    1595             1600             1605

Val Phe  Gly Ser Asn Asp Lys  Lys
    1610             1615
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<210> 17
<211> 274
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> 30K adhesin-related protein

<220>
<221> misc_feature
<223> gi|1674069

<400> 17

```
Met Lys Leu Pro Pro Arg Arg Lys Leu Lys Leu Phe Leu Leu Ala Trp
1               5               10              15

Met Leu Val Leu Phe Ser Ala Leu Ile Val Leu Ala Thr Leu Ile Leu
            20              25              30

Val Gln His Asn Asn Thr Glu Leu Thr Glu Val Lys Ser Glu Leu Ser
```

    Pro Leu Asn Val Val Leu His Ala Glu Glu Asp Thr Val Gln Ile Gln
        50   55   60

    Gly Lys Pro Ile Thr Glu Gln Ala Trp Phe Ile Pro Thr Val Ala Gly
    65   70   75   80

    Cys Phe Gly Phe Ser Ala Leu Ala Ile Ile Leu Gly Leu Ala Ile Gly
                    85   90   95

    Leu Pro Ile Val Lys Arg Lys Glu Lys Arg Leu Leu Glu Glu Lys Glu
                100   105   110

    Arg Gln Glu Gln Leu Ala Glu Gln Leu Gln Arg Ile Ser Ala Gln Gln
            115   120   125

    Glu Glu Gln Gln Ala Leu Glu Gln Gln Ala Ala Ala Glu Ala His Ala
            130   135   140

    Glu Ala Glu Val Glu Pro Ala Pro Gln Pro Val Pro Val Pro Pro Gln
    145   150   155   160

    Pro Gln Val Gln Ile Asn Phe Gly Pro Arg Thr Gly Phe Pro Pro Gln
                    165   170   175

    Pro Gly Met Ala Pro Arg Pro Gly Met Pro Pro His Pro Gly Met Ala
                180   185   190

    Pro Arg Pro Gly Phe Pro Pro Gln Pro Gly Met Ala Pro Arg Pro Gly
                195   200   205

    Met Pro Pro His Pro Gly Met Ala Pro Arg Pro Gly Phe Pro Pro Gln
        210   215   220

    Pro Gly Met Ala Pro Arg Pro Gly Met Pro Pro His Pro Gly Met Ala
    225   230   235   240

    Pro Arg Pro Gly Phe Pro Pro Gln Pro Gly Met Ala Pro Arg Pro Gly
                    245   250   255

    Met Gln Pro Pro Arg Pro Gly Met Pro Pro Gln Pro Gly Phe Pro Pro
                260   265   270

    Lys Arg

    <210>   18
    <211>   256
    <212>   PRT
    <213>   M. tuberculosis

    <220>
    <221>   misc_feature
    <223>   PE_PGRS

<220>
<221> misc_feature
<223> gi|3261822

<400> 18

Met Ile Gly Asp Gly Ala Asn Gly Gly Pro Gly Gln Pro Gly Gly Pro
1   5   10   15

Gly Gly Leu Leu Tyr Gly Asn Gly Gly His Gly Gly Ala Gly Ala Ala
            20   25   30

Gly Gln Asp Arg Gly Ala Gly Asn Ser Ala Gly Leu Ile Gly Asn Gly
            35   40   45

Gly Ala Gly Gly Ala Gly Gly Asn Gly Gly Ile Gly Gly Ala Gly Ala
        50   55   60

Pro Gly Gly Leu Gly Gly Asp Gly Gly Lys Gly Gly Phe Ala Asp Glu
65   70   75   80

Phe Thr Gly Gly Phe Ala Gln Gly Gly Arg Gly Gly Phe Gly Gly Asn
            85   90   95

Gly Asn Thr Gly Ala Ser Gly Gly Met Gly Gly Ala Gly Gly Ala Gly
            100   105   110

Gly Ala Gly Gly Ala Gly Gly Leu Leu Ile Gly Asp Gly Gly Ala Gly
        115   120   125

Gly Ala Gly Gly Ile Gly Gly Ala Gly Gly Val Gly Gly Gly Gly Gly
        130   135   140

Ala Gly Gly Thr Gly Gly Gly Gly Val Ala Ser Ala Phe Gly Gly Gly
145   150   155   160

Asn Ala Phe Gly Gly Arg Gly Gly Asp Gly Gly Asp Gly Gly Asp Gly
                165   170   175

Gly Thr Gly Gly Ala Gly Gly Ala Arg Gly Ala Gly Gly Ala Gly Gly
            180   185   190

Ala Gly Gly Trp Leu Ser Gly His Ser Gly Ala His Gly Ala Met Gly
            195   200   205

Ser Gly Gly Glu Gly Gly Ala Gly Gly Gly Gly Ala Arg Gly Glu
    210   215   220

Ala Gly Ala Gly Gly Gly Thr Ser Thr Gly Thr Asn Pro Gly Lys Ala
225   230   235   240

Gly Ala Pro Gly Thr Gln Gly Asp Ser Gly Asp Pro Gly Pro Pro Gly

<210> 19
<211> 484
<212> PRT
<213> M. tuberculosis

<220>
<221> misc_feature
<223> PE_PGRS

<220>
<221> misc_feature
<223> gi|2894254

<400> 19

Ala Gln Ala Ser Pro Ala Ala His Gly Gly Ser Gly Gly Ala Gly Gly
1   5   10   15

Asn Gly Gly Ala Gly Ser Ala Gly Asn Gly Gly Ala Gly Gly Ala Gly
            20   25   30

Gly Asn Gly Gly Ala Gly Gly Asn Gly Gly Gly Gly Asp Ala Gly Asn
        35   40   45

Ala Gly Ser Gly Gly Asn Gly Gly Lys Gly Gly Asp Gly Val Gly Pro
    50   55   60

Gly Ser Thr Gly Gly Ala Gly Gly Lys Gly Gly Ala Gly Ala Asn Gly
65   70   75   80

Gly Ser Ser Asn Gly Asn Ala Arg Gly Gly Asn Ala Gly Asn Gly Gly
            85   90   95

His Gly Gly Ala Gly Gly Ser Gly Asp Thr Gly Gly Ala Gly Gly Ala
            100   105   110

Gly Gly Gln Gly Gly Phe Gly Gly Thr Gly Gly Ser Gly Ser Gly Ile
        115   120   125

Gly Gly Gly Ala Gly Gly Asn Gly Gly Asn Gly Gly Ala Gly Gly Thr
    130   135   140

Gly Val Val Leu Gly Gly Lys Gly Gly Asp Gly Gly Asn Gly Asp His
145   150   155   160

Gly Gly Pro Ala Thr Asn Pro Gly Ser Gly Ser Arg Gly Gly Ala Gly
            165   170   175

Gly Ser Gly Gly Asn Gly Gly Ala Gly Gly Asn Ala Thr Gly Ser Gly
            180   185   190

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Gly Lys Gly Gly Ala Gly Gly Asn Gly Gly Asp Gly Ser Phe Gly Ala
        195   200   205

Thr Ser Gly Pro Ala Ser Ile Gly Val Thr Gly Ala Pro Gly Gly Asn
        210   215   220

Gly Gly Lys Gly Gly Ala Gly Gly Ser Asn Pro Asn Gly Ser Gly Gly
225   230   235   240

Asp Gly Gly Lys Gly Gly Asn Gly Gly Ala Gly Gly Asn Gly Gly Ser
            245   250   255

Ile Gly Ala Asn Ser Gly Ile Val Gly Gly Ser Gly Gly Ala Gly Gly
        260   265   270

Ala Gly Gly Ala Gly Gly Asn Gly Ser Leu Ser Ser Gly Glu Gly Gly
        275   280   285

Lys Gly Gly Asp Gly Gly His Gly Gly Asp Gly Val Gly Gly Asn Ser
        290   295   300

Ser Val Thr Gln Gly Gly Ser Gly Gly Gly Gly Ala Gly Gly Ala
305   310   315   320

Gly Gly Ser Gly Phe Phe Gly Gly Lys Gly Gly Phe Gly Gly Asp Gly
            325   330   335

Gly Gln Gly Gly Pro Asn Gly Gly Gly Thr Val Gly Thr Val Ala Gly
            340   345   350

Gly Gly Gly Asn Gly Gly Val Gly Gly Arg Gly Gly Asp Gly Val Phe
            355   360   365

Ala Gly Ala Gly Gly Gln Gly Gly Leu Gly Gly Gln Gly Gly Asn Gly
        370   375   380

Gly Gly Ser Thr Gly Gly Asn Gly Gly Leu Gly Gly Ala Gly Gly Gly
385   390   395   400

Gly Gly Asn Ala Pro Asp Gly Gly Phe Gly Gly Asn Gly Gly Lys Gly
            405   410   415

Gly Gln Gly Gly Ile Gly Gly Gly Thr Gln Ser Ala Thr Gly Leu Gly
            420   425   430

Gly Asp Gly Gly Asp Gly Gly Asp Gly Gly Asn Gly Gly Asn Ser Gly
            435   440   445

Ala Lys Ala Gly Gly Ala Gly Gly Lys Gly Gln Ala Gly Gln Pro Asn
        450   455   460

Ser Gly Thr Glu Pro Gly Phe Gly Gly Asp Gly Gly Leu Gly Gly Ala
465   470   475   480

Gly Ala Thr Pro

<210> 20
<211> 1079
<212> PRT
<213> M. tuberculosis

<220>
<221> misc_feature
<223> PE_PGRS

<220>
<221> misc_feature
<223> gi|2924449

<400> 20

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Pro Gln Gly Ala Asp Gly Asn Ala Gly Asn Gly Gly Asp Gly Gly Val
1               5                   10                  15

Gly Gly Asn Gly Gly Asn Gly Ala Asp Asn Thr Thr Thr Ala Ala Ala
            20                  25                  30

Gly Thr Thr Gly Gly Ala Gly Gly Ala Gly Gly Ala Gly Gly Thr Gly
        35                  40                  45

Gly Thr Gly Gly Ala Ala Gly Thr Gly Thr Gly Gly Gln Gln Gly Asn
    50                  55                  60

Gly Gly Asn Gly Gly Asn Gly Gly Thr Gly Gly Lys Gly Gly Thr Gly
65                  70                  75                  80

Gly Asp Gly Ala Leu Ala Gly Ser Ser Gly Gly Ala Gly Gly Lys Gly
                85                  90                  95

Gly Asn Gly Gly Asp Ala Gly Lys Ala Gly Thr Gly Ser Ala Pro Gly
            100                 105                 110

Thr Ala Gly Thr Gly Gly Asp Gly Gly Lys Gly Gly Asn Gly Gly Ile
        115                 120                 125

Gly Ala Ala Gly Thr Thr Gly Pro Val Gly Thr Gly Ala Ser Gly Gly
    130                 135                 140

Thr Gly Gly Ser Gly Gly Ala Gly Gly Thr Gly Gly Asp Gly Gly Ala
145                 150                 155                 160

Ala Asn Gly Gly Thr Ala Gly Ala Gly Gly Ala Gly Gly Asn Gly Gly
                165                 170                 175

Lys Gly Gly Asp Gly Gly Ala Gly Val Thr Ser Ser Thr Ala Gly Asn
            180                 185                 190
```

Ser Gly Gly Ala Gly Gly Ser Gly Gly Lys Gly Gly Asp Ala Gly Ala
    195   200   205

Gly Gly Ala Gly Ala Thr Pro Gly Ala Asn Gly Ile Ala Gly Asn Gly
    210   215   220

Gly Asp Gly Gly Asp Gly Ala Ala Gly Ala Val Gly Ile Ser Gly Ala
225   230   235   240

Thr Gly Ala Gly Asp Gly Gly His Gly Gly Thr Gly Ala Ala Gly Gly
            245   250   255

Asn Gly Gly Thr Gly Gly Ala Gly Gly Ser Gly Ile Asp Gly Val Gly
        260   265   270

Gly Gly Thr Gly Gly Thr Gly Gly Asn Gly Gly Asn Gly Ala Ile Gly
    275   280   285

Gly Ala Gly Gly Asp Ala Gly Gly Ser Gly Asn Ser Gly Gly Asn Gly
    290   295   300

Gly Ile Gly Gly Lys Gly Gly Asn Ala Gly Ala Gly Gly Ala Ala Gly
305   310   315   320

Ser Asn Gly Gly Thr Val Gly Ala Asn Gly Thr Gly Gly Asp Gly Gly
            325   330   335

Asn Gly Gly Ala Ala Gly Ala Ala Thr Ala Gly Ser Asn Gly Gly Ala
        340   345   350

Gly Thr Gly Ser Ala Gly Gly Asn Gly Gly Thr Gly Gly Arg Gly Gly
        355   360   365

Ser Gly Gly Ala Gly Gly Asp Gly Ile Gly Gly Val Gly Gly Gly Lys
    370   375   380

Gly Gly Asn Gly Ala Asp Gly Glu Val Gly Gly Ala Gly Gly Ala Gly
385   390   395   400

Gly Ser Gly Pro Asn Thr Ser Pro Gly Gly Asn Gly Gly Gln Gly Gly
            405   410   415

Gln Gly Gly Ser Gly Gly Ala Gly Gly Ala Ala Gly Ala Gly Gly Ala
            420   425   430

Gly Gly Gly Ala Asn Gly Thr Ala Gly Asn Gly Gly Gln Gly Gly Ala
        435   440   445

Gly Gly Thr Gly Gly Ala Gly Ala Ala Ser Ser Ala Thr Asn Gly Gly
    450   455   460

Ser Gly Gly Ala Gly Gly Thr Gly Gly Asp Gly Gly Ser Gly Gly Ala
465   470   475   480

Gly Gly Thr Gly Gly Ala Gly Gly Thr Gly Gly Ala Ala Gly Asp Gly

Gly Gln Gly Gly Gln Gly Gly Ala Gly Gly Gly Ala Gly Gly Gln Gly
            500   505   510

Gly Ala Gly Gly Ala Gly Gly Thr Gly Gly Asn Gly Gly Asn Ile Thr
            515   520   525

Gly Gly Thr Ala Gly Thr Ala Gly Ala Ala Gly Asn Gly Gly Ala Ala
       530   535   540

Gly Lys Gly Gly Ala Gly Gly Gln Gly Gly Thr Gly Gly Gly Thr Gly
545   550   555   560

Gly Gln Gly Gly Ala Gly Gly Asp Gly Gly Ala Gly Gly Thr Gly Gly
            565   570   575

Asp Arg Thr Val Gly Gly Gly Thr Val Pro Ala Gly Ser Gly Gly Gln
            580   585   590

Gly Gly Asn Ala Gly Gly Gly Gly Ala Gly Gly Gln Gly Gly Ala Asp
       595   600   605

Gly Gly Ser Gly Gly Asp Gly Gly Asp Ala Gly Thr Gly Gly Asn Gly
       610   615   620

Gly Asn Gly Gly Asn Arg Asn Ser Gly Asn Gly Thr Gly Gly Ala Gly
625   630   635   640

Gly Asn Gly Gly Gly Gly Ala Asn Gly Gly Ala Gly Gly Ala Gly Gly
            645   650   655

Ser Gly Gly Gly Thr Gly Gly Asn Gly Gly Ala Gly Gly Asp Ala Gly
       660   665   670

Asp Ala Gly Asn Gly Gly Asn Gly Asn Gly Thr Gly Asn Gly Gly Asn
       675   680   ·   685

Gly Gly Asn Gly Gly Ile Ala Gly Met Gly Gly Asn Gly Gly Ala Gly
       690   695   700

Thr Gly Ser Gly Asn Gly Gly Asn Gly Gly Ser Gly Gly Asn Gly Gly
705   710   715   720

Asn Ala Gly Met Gly Gly Asn Ser Gly Thr Gly Ser Gly Asp Gly Gly
            725   730   735

Ala Gly Gly Asn Gly Gly Ala Ala Gly Thr Gly Gly Thr Gly Gly Asp
            740   745   750

Gly Gly Leu Thr Gly Thr Gly Gly Thr Gly Gly Ser Gly Gly Thr Gly
       755   760   765

Gly Asp Gly Gly Asn Gly Gly Asn Gly Ala Asp Asn Thr Ala Asn Met
       770   775   780

Thr Ala Gln Ala Gly Gly Asp Gly Gly Asn Gly Gly Asp Gly Gly Phe
785   790   795   800

Gly Gly Gly Ala Gly Ala Gly Gly Gly Gly Leu Thr Ala Gly Ala Asn
              805   810   815

Gly Thr Gly Gly Gln Gly Gly Ala Gly Gly Asp Gly Gly Asn Gly Ala
          820   825   830

Ile Gly Gly His Gly Pro Leu Thr Asp Asp Pro Gly Gly Asn Gly Gly
        835   840   845

Thr Gly Gly Asn Gly Gly Thr Gly Gly Thr Gly Gly Ala Gly Ile Gly
        850   855   860

Ser Leu Gly Gly Gly Thr Gly Gly Asp Gly Gly Asn Gly Gly Asn Gly
865   870   875   880

Gly Thr Gly Gly Glu Gly Gly Glu Val Gly Gly Ala Gly Gly Thr Gly
              885   890   895

Gly Ala Ala Gly Asn Gly Gly Asp Gly Gly Thr Gly Gly Thr Gly Gly
          900   905   910

Gly Asp Gly Gly Ala Gly Gly Thr Gly Gly Thr Gly Gly Thr Gly Gly
        915   920   925

Leu Gly Asp Pro Arg Val Gly Gly Ser Gly Gly Asp Gly Gly Thr Gly
        930   935   940

Gly Ser Gly Gly Ala Ala Gly Asn Gly Gly Asn Gly Gly Asn Ala Gly
945   950   955   960

Ala Gly Gly Asn Gly Asn Gly Gly Thr Gly Gly Ala Gly Gly Ile Gly
              965   970   975

Gly Thr Gly Gly Asn Gly Gly Asp Ala Glu Pro Gly Val Pro Pro Gly
          980   985   990

Ala Gly Gly Ala Gly Gly Ala Gly Thr Thr Gly Gly Lys Gly Gly Thr
          995   1000   1005

Gly Gly Asn Gly Ser Gly Thr Gly Ser Gly Gly Thr Gly Gly Asp
    1010   1015   1020

Gly Gly Thr Gly Gly Gly Gly Gly Asn Gly Gly Thr Gly Trp Asn
    1025   1030   1035

Gly Gly Lys Gly Asp Thr Gly Ser Gly Gly Gly Ala Gly Asp Gly
    1040   1045   1050

Gly Lys Ala Pro Ala Gly Gly Thr Gly Gly Ala Gly Gly Asp Gly
    1055   1060   1065

Gly Ala Gly Gly Lys Gly Gly Ser Gly Gly Val
    1070   1075

<210> 21
<211> 354
<212> PRT
<213> M. tuberculosis

<220>
<221> misc_feature
<223> PPE

<220>
<221> misc_feature
<223> gi|1781260

<400> 21

Met Pro Gly Arg Phe Arg Asn Phe Gly Ser Gln Asn Leu Gly Ser Gly
1   5   10   15

Asn Ile Gly Ser Thr Asn Val Gly Ser Gly Asn Ile Gly Ser Thr Asn
            20   25   30

Val Gly Ser Gly Asn Ile Gly Asp Thr Asn Phe Gly Asn Gly Asn Asn
            35   40   45

Gly Asn Phe Asn Phe Gly Ser Gly Asn Thr Gly Ser Asn Asn Ile Gly
    50   55   60

Phe Gly Asn Thr Gly Ser Gly Asn Phe Gly Phe Gly Asn Thr Gly Asn
65   70   75   80

Asn Asn Ile Gly Ile Gly Leu Thr Gly Asp Gly Gln Ile Gly Ile Gly
                85   90   95

Gly Leu Asn Ser Gly Ser Gly Asn Ile Gly Phe Gly Asn Ser Gly Thr
            100   105   110

Gly Asn Val Gly Leu Phe Asn Ser Gly Thr Gly Asn Val Gly Phe Gly
            115   120   125

Asn Ser Gly Thr Ala Asn Thr Gly Phe Gly Asn Ala Gly Asn Val Asn
    130   135   140

Thr Gly Phe Trp Asn Gly Gly Ser Thr Asn Thr Gly Leu Ala Asn Ala
145   150   155   160

Gly Ala Gly Asn Thr Gly Phe Phe Asp Ala Gly Asn Tyr Asn Phe Gly
            165   170   175

Ser Leu Asn Ala Gly Asn Ile Asn Ser Ser Phe Gly Asn Ser Gly Asp
            180   185   190

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Gly Asn Ser Gly Phe Leu Asn Ala Gly Asp Val Asn Ser Gly Val Gly
        195   200   205

Asn Ala Gly Asp Val Asn Thr Gly Leu Gly Asn Ser Gly Asn Ile Asn
        210   215   220

Thr Gly Gly Phe Asn Pro Gly Thr Leu Asn Thr Gly Phe Phe Ser Ala
225   230   235   240

Met Thr Gln Ala Gly Pro Asn Ser Gly Phe Phe Asn Ala Gly Thr Gly
            245   250   255

Asn Ser Gly Phe Gly His Asn Asp Pro Ala Gly Ser Gly Asn Ser Gly
        260   265   270

Ile Gln Asn Ser Gly Phe Gly Asn Ser Gly Tyr Val Asn Thr Ser Thr
        275   280   285

Thr Ser Met Phe Gly Gly Asn Ser Gly Val Leu Asn Thr Gly Tyr Gly
        290   295   300

Asn Ser Gly Phe Tyr Asn Ala Ala Val Asn Asn Thr Gly Ile Phe Val
305   310   315   320

Thr Gly Val Met Ser Ser Gly Phe Phe Asn Phe Gly Thr Gly Asn Ser
            325   330   335

Gly Leu Leu Val Ser Gly Asn Gly Leu Ser Gly Phe Phe Lys Asn Leu
        340   345   350

Phe Gly

<210> 22
<211> 29
<212> PRT
<213> Pseudomonas aeruginosa

<220>
<221> misc_feature
<223> KdpF protein

<220>
<221> misc_feature
<223> gi|9947600

<400> 22

Met Thr Val Leu Asp Trp Leu Ser Leu Ala Leu Ala Thr Gly Leu Phe
1   5   10   15

Val Tyr Leu Leu Val Ala Leu Leu Arg Ala Asp Arg Ala

<210> 23
<211> 352
<212> PRT
<213> Pseudomonas aeruginosa

<220>
<221> misc_feature
<223> alginate regulatory protein AlgP

<220>
<221> misc_feature
<223> gi|9951563

<400> 23

Met Ser Ala Asn Lys Lys Pro Val Thr Thr Pro Leu His Leu Leu Gln
1   5   10   15

Gln Leu Ser His Ser Leu Val Glu His Leu Glu Gly Ala Cys Lys Gln
            20   25   30

Ala Leu Val Asp Ser Glu Lys Leu Leu Ala Lys Leu Glu Lys Gln Arg
        35   40   45

Gly Lys Ala Gln Glu Lys Leu His Lys Ala Arg Thr Lys Leu Gln Asp
    50   55   60

Ala Ala Lys Ala Gly Lys Thr Lys Ala Gln Ala Lys Ala Arg Glu Thr
65   70   75   80

Ile Ser Asp Leu Glu Glu Ala Leu Asp Thr Leu Lys Ala Arg Gln Ala
            85   90   95

Asp Thr Arg Thr Tyr Ile Val Gly Leu Lys Arg Asp Val Gln Glu Ser
        100   105   110

Leu Lys Leu Ala Gln Gly Val Gly Lys Val Lys Glu Ala Ala Gly Lys
        115   120   125

Ala Leu Glu Ser Arg Lys Ala Lys Pro Ala Thr Lys Pro Ala Ala Lys
    130   135   140

Ala Ala Ala Lys Pro Ala Val Lys Thr Val Ala Ala Lys Pro Ala Ala
145   150   155   160

Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala
            165   170   175

Lys Thr Ala Ala Ala Lys Pro Ala Ala Lys Pro Thr Ala Lys Pro Ala
            180   185   190

```
Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Thr Ala Ala Ala Lys Pro
        195             200             205
```

```
Ala Ala Lys Pro Ala Ala Lys Pro Val Ala Lys Pro Ala Ala Lys Pro
        210             215             220
```

```
Ala Ala Lys Thr Ala Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys
225             230             235             240
```

```
Pro Val Ala Lys Pro Thr Ala Lys Pro Ala Ala Lys Thr Ala Ala Ala
            245             250             255
```

```
Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala
        260             265             270
```

```
Lys Pro Val Ala Lys Ser Ala Ala Ala Lys Pro Ala Ala Lys Pro Ala
        275             280             285
```

```
Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Val
        290             295             300
```

```
Ala Ala Lys Pro Ala Ala Thr Lys Pro Ala Thr Ala Pro Ala Ala Lys
305             310             315             320
```

```
Pro Ala Ala Thr Pro Ser Ala Pro Ala Ala Ala Ser Ser Ala Ala Ser
            325             330             335
```

```
Ala Thr Pro Ala Ala Gly Ser Asn Gly Ala Ala Pro Thr Ser Ala Ser
            340             345             350
```

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<210>   24
<211>   309
<212>   PRT
<213>   Pseudomonas aeruginosa

<220>
<221>   misc_feature
<223>   polyhydroxyalkanoate synthesis protein PhaF


<220>
<221>   misc_feature
<223>   gi|9951352


<400>   24
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```
Met Ala Gly Lys Lys Lys Ser Glu Lys Glu Ser Ser Trp Ile Gly Glu
1               5               10              15
```

```
Ile Glu Lys Tyr Ser Arg Gln Ile Trp Leu Ala Gly Leu Gly Ala Tyr
            20              25              30
```

```
Ser Lys Val Ser Lys Asp Gly Ser Lys Leu Phe Glu Thr Leu Val Lys
        35              40              45
```

Asp Gly Glu Lys Ala Glu Lys Glu Ala Lys Ser Asp Val Asp Ala Gln
    50   55   60

Val Gly Ala Ala Lys Ala Ser Ala Arg Ser Ala Lys Ser Lys Val Asp
65   70   75   80

Glu Val Arg Asp Arg Ala Leu Gly Lys Trp Ser Glu Leu Glu Glu Ala
            85   90   95

Phe Asp Lys Arg Leu Asn Ser Ala Ile Ser Arg Leu Gly Val Pro Ser
            100   105   110

Arg Asn Glu Val Lys Glu Leu His Ser Lys Val Asp Thr Leu Thr Lys
        115   120   125

Gln Ile Glu Lys Leu Thr Gly Val Ser Val Lys Pro Ala Ala Lys Ala
    130   135   140

Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Thr
145   150   155   160

Ala Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Ala Ala Ala Lys
            165   170   175

Pro Ala Ala Lys Pro Ala Ala Lys Lys Thr Ala Ala Lys Thr Ala Ala
            180   185   190

Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro Thr Ala Lys Ala Ala
        195   200   205

Ala Lys Pro Ala Thr Lys Pro Ala Ala Lys Ala Ala Ala Lys Pro Ala
    210   215   220

Ala Lys Pro Ala Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro
225   230   235   240

Ala Ala Ala Thr Ala Ala Lys Pro Ala Ala Lys Pro Ala Ala Lys Pro
            245   250   255

Ala Ala Lys Lys Pro Ala Ala Lys Lys Pro Ala Ala Lys Pro Ala Ala
        260   265   270

Ala Lys Pro Ala Ala Pro Ala Ala Ser Ser Ser Ala Pro Ala Ala Pro
        275   280   285

Ala Ala Thr Pro Ala Ala Ser Ala Pro Ala Ala Asn Ala Pro Ala Thr
    290   295   300

Pro Ser Ser Gln Gly
305

<210> 25
<211> 632
<212> PRT

<213> T. pallidum

<220>
<221> misc_feature
<223> dicarboxylate transporter (dctM)

<220>
<221> misc_feature
<223> gi|3323280

<400> 25

Met Lys Gly Thr Arg Gly Gln Leu Val Leu Arg Ser Ile Ala Leu Leu
1   5   10   15

Leu Ile Gly Thr Leu Met Leu Leu Pro Leu Val Leu Phe Leu Ile Glu
                20   25   30

Arg Ile Phe Gly Phe Leu Thr Arg Gly Val Gly Ser Glu Val Phe Ser
            35   40   45

Ala His Glu Asp Phe Ile Phe Leu Phe Phe Ser Ser Ser Asp Ala Ala
        50   55   60

Val Ala Gln Leu Ala Phe Val Phe Ser Cys Val Ala Gly Ile Tyr Ala
65   70   75   80

Ala Arg Glu Arg Lys His Leu Ser Val Thr Leu Phe Ser Cys Asp Val
                85   90   95

Asp Arg Pro Met His Arg Val Leu Ser Phe Leu Ser Ala Ile Cys Thr
            100   105   110

Val Ala Val Leu Ser Ala Cys Phe Phe Ala Ser Gly Pro Asn Ile Val
        115   120   125

Ala Val Phe Arg Lys Glu Glu Ala Val Trp Gly Val Pro Leu Arg Trp
        130   135   140

Ile Phe Thr Ala Leu Pro Cys Met Tyr Gly Ala Leu Leu Phe His Tyr
145   150   155   160

Ala Arg Glu Val Lys Cys Arg Thr Cys Val Ile Val Gly Leu Leu Val
                165   170   175

Gly Val Leu Ile Ser Thr Gly Ser Ile Ala Ser Val Leu Phe His Leu
            180   185   190

Phe Asp Leu Thr Val Pro Leu Leu Asp Ser Val Phe His Gly Trp Val
        195   200   205

Ala Val Gly Thr Arg Leu Phe Trp Pro Phe Val Leu Leu Leu Leu Leu
        210   215   220

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```
Leu Ala Ala Gln Gly Leu Pro Leu Phe Ile Thr Leu Leu Ala Ile Ala
225             230             235             240

Tyr Leu Ala Leu Ser Val Asp Gly Gly Tyr Val Asp Thr Leu Pro Leu
            245             250             255

Glu Gly Tyr Lys Ile Leu Thr Asp Thr Gly Gly Ile Val Ala Val Pro
            260             265             270

Leu Phe Ala Thr Ala Ser Leu Leu Leu Ala Arg Gly Ser Thr Gly Thr
        275             280             285

Arg Leu Leu Arg Leu Val Lys Glu Ala Val Gly Trp Leu Arg Gly Gly
    290             295             300

Ala Ala Val Ala Cys Val Ala Val Ala Ala Leu Phe Thr Ser Leu Thr
305             310             315             320

Gly Val Ser Gly Val Thr Ile Leu Ala Leu Gly Ser Leu Phe Lys Leu
            325             330             335

Ile Leu Thr Gly Asn Lys Tyr Pro Glu His Asp Ala Glu Ala Leu Ile
        340             345             350

Thr Ser Ser Gly Ala Ile Gly Leu Leu Phe Pro Pro Ser Ala Ala Ile
        355             360             365

Ile Ile Phe Gly Ala Thr Asn Ile Leu Thr Val His Ile Val Asp Leu
    370             375             380

Phe Lys Gly Ala Leu Leu Pro Gly Thr Leu Leu Val Leu Ser Ala Met
385             390             395             400

Cys Leu Gly Val Ala Lys Asp Arg Thr Gln Val Arg Pro Ser Phe Ser
            405             410             415

Trp Gln Leu Leu Val His Ala Val Arg Gly Ser Val Phe Asp Leu Ala
        420             425             430

Leu Pro Val Cys Ile Ser Leu Gly Tyr Phe Ser Gly Thr Leu Asn Leu
        435             440             445

Leu Gln Cys Ala Ser Leu Thr Thr Leu Leu Ala Phe Val Leu Gly Thr
    450             455             460

Trp Val Arg Arg Asp Phe Thr Val Lys Glu Ala Cys Ala Thr Ala Leu
465             470             475             480

Glu Ser Leu Pro Ile Val Gly Gly Ile Leu Ile Ile Val Ala Ala Ala
            485             490             495

Lys Gly Leu Ser Phe Tyr Leu Val Asp Ala Asn Val Pro Asp Thr Leu
        500             505             510
```

Ile Ala Phe Leu Gln His Ala Ile Ser Ser Lys Tyr Ala Phe Leu Leu
        515   520   525

Leu Leu Asn Val Leu Leu Leu Gly Val Gly Cys Ile Met Asp Leu Tyr
        530   535   540

Ser Ala Ile Leu Val Ile Ser Pro Leu Val Leu Pro Leu Ala Val His
545   550   555   560

Phe Gly Val His Pro Val His Ala Ser Val Val Phe Leu Met Asn Leu
            565   570   575

Glu Leu Gly Ala Leu Thr Pro Pro Ile Gly Met Asn Leu Phe Ile Ala
        580   585   590

Ser Phe Ala Phe Glu Lys Pro Ile Val Tyr Leu Thr Arg Ala Ile Ala
        595   600   605

Pro Phe Leu Leu Ala Gln Leu Gly Val Leu Leu Leu Thr Thr Tyr Ile
    610   615   620

Pro Trp Leu Ser Thr Ala Phe Leu
625   630

<210>   26
<211>   653
<212>   PRT
<213>   Vibrio cholerae

<220>
<221>   misc_feature
<223>   iron(III) ABC transporter, permease protein

<220>
<221>   misc_feature
<223>   gi|9654609

<400>   26

Met Ser Val Leu Arg Leu Thr Gly Leu Gly Ala Leu Thr Leu Leu Leu
1   5   10   15

Ala Leu Val Ser Leu Gln Trp Gly His Asn Leu Thr Leu Asn Glu Gln
            20   25   30

Trp Gln Leu Val Leu Gly His Gln Ala Ala Gln Ser Phe Ala Gln Val
        35   40   45

Asn Phe Ile Tyr Ala Gln Leu Pro Arg Ala Val Met Ala Ile Val Val
    50   55   60

Gly Ala Val Leu Gly Leu Val Gly Ser Leu Met Gln Gln Leu Thr Gln
65   70   75   80

Asn Arg Leu Thr Ser Pro Leu Thr Leu Gly Thr Ser Ser Gly Ala Trp
          85   90   95

Leu Gly Leu Ile Ile Val Asn Ile Trp Phe Ser Asp Trp Val Ala Asp
          100   105   110

Tyr Ser Ala Leu Ala Ala Met Ala Gly Ala Leu Leu Ala Phe Ala Leu
          115   120   125

Ile Ile Ser Ile Ala Gly Leu Arg Asn Leu Thr Gly Leu Pro Leu Val
     130   135   140

Val Ser Gly Met Val Val Asn Ile Leu Leu Gly Ser Ile Ala Thr Ala
145   150   155   160

Leu Val Leu Leu Asn Glu Glu Phe Ala Gln Asn Val Phe Met Trp Gly
              165   170   175

Ala Gly Asp Leu Ala Gln Asn Gly Trp Glu Trp Leu Thr Trp Leu Leu
              180   185   190

Pro Arg Leu Ala Leu Val Phe Pro Leu Leu Leu Phe Ala Pro Arg Val
          195   200   205

Leu Thr Leu Leu Arg Leu Gly His Glu Gly Ala Ala Ala Arg Gly Leu
          210   215   220

Ala Val Leu Pro Ala Phe Leu Phe Leu Met Ala Gly Gly Ile Trp Leu
225   230   235   240

Val Ser Ala Ser Ile Thr Ala Val Gly Val Ile Gly Phe Ile Gly Leu
              245   250   255

Leu Thr Pro Asn Ile Ala Arg Ser Leu Gly Ala Arg Thr Thr Lys Met
              260   265   270

Glu Leu Tyr Ser Ser Ala Leu Leu Gly Ala Leu Leu Leu Leu Ala Thr
          275   280   285

Asp Met Leu Ala Met Gly Leu Ser Val Trp Ala Glu Glu Val Val Pro
          290   295   300

Ser Gly Ile Thr Ala Ala Val Ile Gly Ala Pro Ala Leu Ile Trp Phe
305   310   315   320

Ser Arg Arg Gln Leu Gln Ala Gln Asp Ser Leu Ser Ile Ser Leu Ser
              325   330   335

Ser His Arg Arg Ser Pro Ser Arg Trp Ala Val Met Leu Ile Ala Ala
              340   345   350

Ala Leu Leu Leu Ala Leu Ser Leu His Ile Gly Trp Gln Met Glu Ser
          355   360   365

```
Ala Ser Trp Ala Leu Pro Ser Glu Phe Gln Trp Pro Leu Arg Trp Pro
    370                 375                 380

Arg Met Leu Thr Ala Leu Phe Ala Gly Val Gly Leu Ala Ile Ala Gly
385                 390                 395                 400

Thr Leu Leu Gln Arg Leu Ile Tyr Asn Pro Leu Ala Ser Pro Asp Ile
                405                 410                 415

Leu Gly Val Ser Ser Gly Ala Thr Phe Ala Leu Val Phe Ala Ser Leu
                420             425                 430

Phe Leu Gly Gln Ser Leu Gln Ser Thr His Trp Met Thr Ala Leu Leu
            435                 440                 445

Gly Ser Ala Ala Val Leu Val Ala Leu Leu Leu Leu Gly Arg Arg His
    450                 455                 460

His Tyr Ala Pro Ser Ser Leu Ile Leu Thr Gly Ile Ala Ile Thr Ala
465                 470                 475                 480

Leu Leu Glu Ala Leu Val Gln Phe Thr Leu Ala Lys Gly Thr Gly Asp
                485                 490                 495

Ser Tyr Gln Ile Leu Leu Trp Leu Ser Gly Ser Thr Tyr Arg Ala Thr
            500                 505                 510

Gly Glu Gln Ala Leu Leu Leu Ser Val Gly Val Val Gly Leu Thr Leu
        515                 520                 525

Leu Ala Leu Gly Leu Ser Arg Trp Leu Thr Leu Ile Ser Ile Gly Arg
    530                 535                 540

Gly Phe Ala Ser Ala Arg Gly Leu Ser Ala Ser Arg Ala Ser Leu Val
545                 550                 555                 560

Leu Leu Ile Leu Val Ala Leu Leu Cys Ala Leu Val Thr Ala Thr Met
                565                 570                 575

Gly Pro Val Ser Phe Val Gly Leu Ile Ala Pro His Met Ala Met Met
            580                 585                 590

Leu Gly Ala Gln Arg Ala Pro Ser Gln Leu Leu Leu Ala Ala Leu Val
        595                 600                 605

Gly Gly Thr Leu Met Leu Trp Ala Asp Trp Leu Gly Gln Ala Leu Leu
    610                 615                 620

Phe Pro Ala Gln Ile Ala Ala Gly Thr Leu Val Ala Ile Ile Gly Gly
625                 630                 635                 640

Ser Tyr Phe Leu Leu Leu Leu Leu Ser Gln Arg Ala Arg
            645                 650
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<210> 27

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<211>  356
<212>  PRT
<213>  Vibrio cholerae

<220>
<221>  misc_feature
<223>  tolA protein


<220>
<221>  misc_feature
<223>  gi|9656364


<400>  27

Met Lys Glu Asn Lys Ser Arg Lys Ser Asn Asp Ala Lys Ser Ile Thr
1               5                   10                  15

Ile Ser Leu Ala Met His Gly Ala Leu Val Ala Ile Leu Leu Trp Gly
            20                  25                  30

Ala Asp Phe Thr Met Ser Asp Pro Glu Pro Thr Gly Gln Met Ile Glu
            35                  40                  45

Ala Val Val Ile Asp Pro Gln Leu Val Arg Gln Gln Ala Gln Gln Ile
        50                  55                  60

Arg Ser Gln Arg Glu Glu Ala Ala Lys Lys Glu Gln Glu Arg Leu Asp
65                  70                  75                  80

Lys Leu Arg Arg Glu Ser Glu Gln Leu Glu Lys Asn Arg Gln Ala Glu
                85                  90                  95

Glu Glu Arg Ile Arg Gln Leu Lys Glu Gln Gln Ala Lys Glu Ala Lys
            100                 105                 110

Ala Ala Arg Glu Ala Glu Lys Leu Arg Glu Gln Lys Glu Gln Glu Arg
            115                 120                 125

Leu Ala Ala Glu Gln Lys Ala Arg Glu Glu Lys Glu Arg Ala Ala Lys
        130                 135                 140

Ala Glu Ala Glu Arg Lys Val Lys Glu Glu Ala Ala Lys Lys Ala Glu
145                 150                 155                 160

Gln Glu Arg Val Ala Lys Glu Ala Ala Ala Lys Ala Glu Gln Gln
                165                 170                 175

Arg Ile Glu Arg Glu Lys Glu Ala Lys Leu Ala Glu Glu Lys Ala Lys
            180                 185                 190

Arg Glu Lys Glu Val Ala Ala Lys Ala Glu Gln Glu Arg Leu Ala Lys
        195                 200                 205
```

Glu Lys Ala Ala Lys Glu Ala Ala Asp Lys Ala Lys Lys Glu Lys Glu
    210   215   220

Arg Ala Ala Lys Ala Glu Ala Glu Arg Lys Ala Gln Glu Ala Ala Leu
225   230   235   240

Asn Asp Ile Phe Gly Ser Leu Ser Glu Glu Ser Gln Gln Asn Asn Ala
                245   250   255   .

Ala Arg Gln Gln Phe Val Thr Ser Glu Val Gly Arg Tyr Gly Ala Ile
                260   265   270

Tyr Thr Gln Leu Ile Arg Gln Asn Leu Leu Val Glu Asp Ser Phe Arg
            275   280   285

Gly Lys Gln Cys Arg Val Asn Leu Lys Leu Ile Pro Thr Gly Thr Gly
    290   295   300

Ala Leu Leu Gly Ser Leu Thr Val Leu Asp Gly Asp Ser Arg Leu Cys
305   310   315   320

Ala Ala Thr Lys Arg Ala Val Ala Gln Val Asn Ser Phe Pro Leu Pro
                325   330   335

Lys Asp Gln Pro Asp Val Val Glu Lys Leu Lys Asn Ile Asn Leu Thr
                340   345   350

Val Ala Pro Glu
            355

<210> 28
<211> 73
<212> PRT
<213> L. major

<220>
<221> misc_feature
<223> hydrophilic surface protein 2

<220>
<221> misc_feature
<223> gi|1743289

<400> 28

Met Gly Ser Ser Cys Thr Lys Asp Ser Ala Lys Glu Pro Gln Lys Ser
1   5   .   10   15

Ala Gly Asn Ile Asp Thr Thr Thr Arg Ser Asp Glu Lys Asp Gly Val
            20   25   30

Leu Val Gln Gln Asn Asp Gly Asp Val Gln Lys Lys Ser Glu Asp Gly
            35   40   45

Asp Asn Val Gly Glu Gly Gly Lys Gly Asn Glu Asp Gly Asn Asp Asp
    50   55   60

Gln Pro Lys Glu His Ala Ala Gly Asn
65   70

<210> 29
<211> 177
<212> PRT
<213> L. major

<220>
<221> misc_feature
<223> hydrophilic surface protein

<220>
<221> misc_feature
<223> gi|468328

<400> 29

Met Gly Ser Ser Cys Thr Lys Asp Ser Ala Lys Glu Pro Gln Lys Ser
1   5   10   15

Ala Asp Lys Ile Lys Ser Thr Asn Glu Thr Asn Gln Gly Gly Asn Ala
            20   25   30

Ser Gly Ser Arg Lys Ser Ala Gly Gly Arg Ala Asn Glu Tyr Asp Pro
        35   40   45

Lys Asp Asp Gly Phe Thr Pro Asn Asn Glu Asp Arg Cys Pro Lys Glu
    50   55   60

Asp Gly His Ala Pro Lys Asn Asp Asp His Ala Pro Lys Glu Asp Gly
65   70   75   80

His Ala Pro Lys Asn Asp Asp His Ala Pro Lys Glu Asp Gly His Ala
                85   90   95

Pro Lys Asn Asp Asp His Ala Pro Lys Glu Asp Gly His Ala Pro Lys
            100   105   110

Asn Asp Asp His Ala Pro Lys Glu Asp Gly His Ala Pro Lys Asn Asp
        115   120   125

Asp His Ala Pro Lys Glu Asp Gly His Ala Pro Lys Asn Asp Gly Asp
    130   135   140

Val Gln Lys Lys Ser Glu Asp Gly Asp Asn Val Gly Glu Gly Gly Lys
145   150   155   160

Gly Asn Glu Asp Gly Asn Asp Asp Gln Pro Lys Glu His Ala Ala Gly

Asn

<210> 30
<211> 106
<212> PRT
<213> Plasmodium falciparum

<220>
<221> misc_feature
<223> predicted integral membrane protein

<220>
<221> misc_feature
<223> gi|3845179

<400> 30

Met Tyr Ile Cys Phe Phe Phe Phe Phe Phe Phe Leu Val Ile Lys Leu
1   5   10   15

Gly Glu Asp Glu Asn Phe Gly Ser Ser Cys Phe Tyr Ser Leu Gly Asn
            20   25   30

Thr Lys Ile Leu Thr Thr Val Tyr Gly Pro Asn Pro Asp Ser Lys Tyr
        35   40   45

Ala Thr Tyr Ser Lys Gly Lys Val Phe Leu Asp Val Lys Ser Leu Asn
    50   55   60

Ile Asn Thr Ile Gly Ala Ser Asp Arg Val Leu Tyr Ile Tyr Gly Phe
65   70   75   80

Phe Phe Phe Phe Phe Phe Phe Phe Phe Phe Ile Leu Asn Arg Ser Tyr
                85   90   95

Phe Phe Leu Val Leu Phe Ile Ile Phe Ile
            100   105

<210> 31
<211> 396
<212> PRT
<213> Plasmodium falciparum

<220>
<221> misc_feature
<223> Circumsporozoite (CS) protein

<220>
<221> misc_feature

<223> gi|4493889

<400> 31

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Met Arg Lys Leu Ala Ile Leu Ser Val Ser Ser Phe Leu Phe Val Glu
1               5               10              15

Ala Leu Phe Gln Glu Tyr Gln Cys Tyr Gly Ser Ser Ser Asn Thr Arg
            20              25              30

Val Leu Asn Glu Leu Asn Tyr Asp Asn Ala Gly Thr Asn Leu Tyr Asn
        35              40              45

Glu Leu Glu Met Asn Tyr Tyr Gly Lys Gln Glu Asn Trp Tyr Ser Leu
    50              55              60

Lys Lys Asn Ser Arg Ser Leu Gly Glu Asn Asp Asp Gly Asn Asn Glu
65              70              75              80

Asp Asn Glu Lys Leu Arg Lys Pro Lys His Lys Lys Leu Lys Gln Pro
            85              90              95

Ala Asp Gly Asn Pro Asp Pro Asn Ala Asn Pro Asn Val Asp Pro Asn
            100             105             110

Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Val Asp Pro Asn
        115             120             125

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
        130             135             140

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
145             150             155             160

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
            165             170             175

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
            180             185             190

Ala Asn Pro Asn Val Asp Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
            195             200             205

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
        210             215             220

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
225             230             235             240

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
            245             250             255

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asn
            260             265             270
```

Lys Asn Asn Gln Gly Asn Gly Gln Gly His Asn Met Pro Asn Asp Pro
        275   280   285

Asn Arg Asn Val Asp Glu Asn Ala Asn Ala Asn Ser Ala Val Lys Asn
        290   295   300

Asn Asn Asn Glu Glu Pro Ser Asp Lys His Ile Lys Glu Tyr Leu Asn
305   310   315   320

Lys Ile Gln Asn Ser Leu Ser Thr Glu Trp Ser Pro Cys Ser Val Thr
                325   330   335

Cys Gly Asn Gly Ile Gln Val Arg Ile Lys Pro Gly Ser Ala Asn Lys
                340   345   350

Pro Lys Asp Glu Leu Asp Tyr Ala Asn Asp Ile Glu Lys Lys Ile Cys
        355   360   365

Lys Met Glu Lys Cys Ser Ser Val Phe Asn Val Val Asn Ser Ser Ile
        370   375   380

Gly Leu Ile Met Val Leu Ser Phe Leu Phe Leu Asn
385   390   395

<210>   32
<211>   497
<212>   PRT
<213>   B. burgdorferi

<220>
<221>   misc_feature
<223>   predicted coding region BB0553

<220>
<221>   misc_feature
<223>   gi|2688482

<400>   32

Met Asn Lys Thr Lys Asn Arg Ser Leu Thr Tyr Phe Ile Ile Leu Ser
1   5   10   15

Cys Ile Ser Leu Phe Gly Ala Asn Asn Asn Thr Ile Ser Tyr Ser Ser
                20   25   30

Ile Glu Ile Pro Leu Glu Asp Leu Ser Glu Glu Phe Lys Ser Ser Gly
        35   40   45

Asn Lys Ser Asp Gln Ile Asn Thr Ser Lys His Leu Asn Lys Asn Ile
        50   55   60

Val Ser Tyr Glu Asp Pro Lys Lys Gly Lys Asp Leu Lys Leu Pro Glu

Asn Ile Arg Asp Lys Lys Leu Pro Gln Lys Arg Met Asp Glu Asn Asp
              85   90   95

Leu Lys Ser Val Ile Glu Asn Tyr Glu Asn Lys Ile Lys Asn Ile Glu
              100   105   110

Lys Leu Leu Lys Thr Lys Asn Gln Lys Thr Ser Glu Asn Glu Asn Lys
              115   120   125

Lys Ile Glu Ser Ile Glu Lys Lys Ala Lys Lys Tyr Glu Ile Leu Thr
              130   135   140

Asn Lys Leu Lys Asn Glu Ile Val Glu Ile Lys Lys Leu Leu Asn Lys
145   150   155   160

Lys Ile Lys Pro Lys Glu Asp Glu Asn Tyr Glu Lys Ile Asn Ile Glu
              165   170   175

Asn Ile Glu Glu Glu Thr Asp Asp Asp Phe Glu Asp Asn Tyr Glu Tyr
              180   185   190

Asn Asp Glu Ile Glu Xaa Thr Asn Glu Asp Asn Tyr Pro Ser Asn Glu
              195   200   205

Gly Ile Ile Asn Asn Leu Lys Glu Asn Leu Asn Glu Asn Glu Lys Tyr
              210   215   220

Tyr Ala Ile Asn Glu Lys Lys Ile Asp Glu Leu Glu Asp Arg Ile Asn
225   230   235   240

Glu Asn Glu Asn Thr Ile Leu Asp Leu Gln Arg Glu Leu Arg Asn Phe
              245   250   255

Lys Lys Lys Asp Asn Ser Asp Lys Asn Leu Glu Glu Ile Glu Glu Asn
              260   265   270

Leu Ser Ser Ile Gly Arg Ile Ile Asn Asp Leu Lys Arg Lys Ile Ser
              275   280   285

Ala Asn Glu Ala Ile Asn Lys Glu Asn Gln Lys Lys Ile Arg Thr Asp
              290   295   300

Lys His Lys Leu Lys Glu Leu Glu Asp Lys Ile Lys Glu Asn Glu Glu
305   310   315   320

Thr Ile Leu Lys Leu Gln Lys Glu Leu Asn Asn Phe Lys Lys Lys Glu
              325   330   335

Ile Tyr Gln Lys Pro Leu Asn Glu Glu Thr Phe Thr Pro Ser Ile Thr
              340   345   350

Ser Lys Asn Asp Asp Leu Glu Glu Asn Lys Lys Leu Lys Lys Glu Tyr
              355   360   365

Leu Lys Pro Ile Glu Lys Lys Glu Ser Arg Asp Leu Glu Glu Asn Thr
    370   375   380

Lys Ser Thr Pro Lys Thr Thr Met Ile Lys Thr Ala Asp Phe Gln Ile
385   390   395   400

Tyr Pro Asp Ile Tyr Leu Asn Asn Tyr Lys Phe Lys Glu Lys Gly Asp
            405   410   415

Gln Phe Ala Phe Lys Lys Glu Asn Thr Tyr Tyr Ile Glu Ile Asp Pro
        420   425   430

Thr Asn Asn Leu Asn Glu Ala Leu Lys Asn His Glu Ile Ile Ser Lys
        435   440   445

Tyr Lys Phe Glu Lys Tyr Phe Ile Asn Pro Ile Leu Lys Asn Lys Glu
    450   455   460

Glu Phe Phe Arg Asn Leu Ile Glu Val Lys Asn Ile His Glu Leu Gly
465   470   475   480

Ile Met Tyr Lys Asn Leu Lys Pro Glu Phe Lys Gln Ile Lys Ile Ile
            485   490   495

Lys

<210> 33
<211> 31
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0148

<220>
<221> misc_feature
<223> gi|2688046

<400> 33

Met Pro Val Lys Lys Asn Ser Thr Lys Ile Lys Lys Lys Glu Thr Gln
1   5   10   15

Ile Ala Ile Ala Leu Lys Ile Ile Ile Ile Ile Tyr Phe Phe Asp
        20   25   30

<210> 34
<211> 30
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0150

<220>
<221> misc_feature
<223> gi|2688045

<400> 34

Met Phe Gly Cys Leu Arg Ile His Val Phe Lys Ile Tyr Phe Ile Phe
1   5   10   15

Leu Ile Ile His Tyr Ile Leu Phe Ser Ile Leu Leu Met Ile
            20   25   30

<210> 35
<211> 344
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0212

<220>
<221> misc_feature
<223> gi|2688103

<400> 35

Met Met Lys Lys Ile Lys Ser Glu Ile Asn Leu Leu Lys Ile Glu Lys
1   5   10   15

Asp Lys Asn Leu Ile Glu Leu Gly Lys Ile Leu Lys Asn Asn Asn Ile
            20   25   30

Val Glu Leu Lys Asn Leu Asn His Tyr Pro Asn Leu Lys Leu Val Glu
        35   40   45

Lys Glu Leu Tyr Gln Met Lys Ser Asn Leu Ser Lys Ser Glu Glu Asn
    50   55   60

Glu Asn Ile Leu Lys Asn Leu Asn Lys Lys Ile Tyr Ile Leu Lys Lys
65   70   75   80

Glu Tyr Lys Ser Thr Ser Lys Ser Tyr Lys Lys Asn Leu Lys Glu Ile
                85   90   95

Ala Lys Thr Ile Ile Glu Ile Tyr Pro Gln Asn Leu Glu Leu Ile Ser

Lys Tyr Asn Met Asn Phe Ser Lys Leu Lys Leu Glu Lys Tyr Lys Lys
        115   120   125

Ile Glu Leu Ala Ser Asp His Lys Thr Lys Asn Tyr Leu Gln Arg Ile
    130   135   140

Met Leu Glu Val Ser Ser Thr Ile Asn Asn Ile Ile Asn Met Ile Asn
145   150   155   160

Val Tyr Lys Ile Ser Lys Glu Phe Glu Lys Gln Val Phe Thr Lys Tyr
                165   170   175

Tyr Pro Ser Glu Asn Phe Glu Ser Ile Met Asn Glu Phe Ser Leu Asn
            180   185   190

Lys Lys Leu Asn Asn Val Ile Val Lys Glu Phe Lys Ile Ile Asn Glu
        195   200   205

Ile Lys Thr Asn Ile Lys Asn Ile Lys Glu Glu Ile Lys Glu Ile Ile
    210   215   220

Ser Thr Ser Lys Lys Glu Lys Ile Tyr Lys Lys Asn Thr Ile Lys Asn
225   230   235   240

Glu Ile Asn Val Ile Thr Lys Asn Lys Glu Asn Ile Leu Lys Lys Ile
                245   250   255

Ala Glu Glu Phe Ile Glu Ile Thr Lys Lys Asp Lys Met Thr Ala Lys
            260   265   270

Thr Asn Ala Ile Ser Ser Ile Ile Gln Lys Ile Glu Lys Ile Asn Gln
        275   280   285

Lys Ile Leu Asn Leu Asn Asn Asp Leu Ile Lys Ile Thr Lys Gln Glu
    290   295   300

Glu Ile Lys Asn Ile Gln Gln Lys Ile Gln Ala Leu Thr Lys Glu Lys
305   310   315   320

Asn Lys Ile Asn Asn Lys Leu Asp Ala Leu Thr Ser Lys Ile Glu Val
                325   330   335

Ile Gln Asn Glu Leu Asp Asn Glu
            340

<210> 36
<211> 30
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0425

<220>
<221> misc_feature
<223> gi|2688333

<400> 36

Met Glu Asp Glu Arg Arg Glu Glu Leu Ser Lys Val Lys Ser Gln Lys
1   5   10   15

Asn Lys Gln Asn Leu Leu Ile Phe Leu Asn Lys Lys Ile Lys
            20   25   30

<210> 37
<211> 32
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0433

<220>
<221> misc_feature
<223> gi|2688343

<400> 37

Met His Lys Phe Phe Lys Leu Ile Leu Lys Leu Phe Ser Phe Tyr Lys
1   5   10   15

Glu Ile Leu Gly Phe Lys Arg Arg Ala Lys Phe Ile Phe Cys Tyr Leu
            20   25   30

<210> 38
<211> 38
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0520

<220>
<221> misc_feature
<223> gi|2688447

<400> 38

Met Ser Lys Ser Thr Lys Asn Thr Thr Lys Ser Lys Asn Asp Thr Lys
1   5   10   15

Asn Ile Leu Ile Asn Lys Lys Ile Lys Phe Phe Ile Leu Thr Lys Lys
            20   25   30

Tyr Thr Arg Thr Phe Tyr
        35

<210>   39
<211>   36
<212>   PRT
<213>   B. burgdorferi

<220>
<221>   misc_feature
<223>   predicted coding region BB0609

<220>
<221>   misc_feature
<223>   gi|2688540

<400>   39

Met Thr Met Ile Ile Ile Ile Phe Tyr Lys Tyr Leu Ile Pro Lys Ser
1   5   10   15

Ile Lys Asp Lys Asn Asn Lys Ser His Lys Thr Phe Ile Lys Lys Phe
            20   25   30

Ile Ile Lys Tyr
        35

<210>   40
<211>   31
<212>   PRT
<213>   B. burgdorferi

<220>
<221>   misc_feature
<223>   predicted coding region BB0822

<220>
<221>   misc_feature
<223>   gi|2688768

<400>   40

Met Pro Cys Gly Arg Lys Arg Lys Leu Lys Lys Ile Ser Thr His Lys
1   5   10   15

Arg Lys Lys Lys Arg Arg Lys Asn Arg His Lys Lys Lys Asn Lys
            20   25   30

<210> 41
<211> 34
<212> PRT
<213> B. burgdorferi

<220>
<221> misc_feature
<223> predicted coding region BB0848

<220>
<221> misc_feature
<223> gi|2688793

<400> 41

Met Tyr Phe Cys Ile Ile Asp Leu Glu Phe Val Gly Val Leu Pro Tyr
1   5   10   15

Phe Phe Ile Tyr Lys Phe Gly Glu Phe Tyr Phe Ser Phe Phe Gly Lys
            20   25   30

Trp Arg

<210> 42
<211> 51
<212> PRT
<213> C. jejuni

<220>
<221> misc_feature
<223> highly acidic protein

<220>
<221> misc_feature
<223> gi|6967728

<400> 42

Met Ala Tyr Glu Asp Glu Glu Asp Leu Asn Tyr Asp Asp Tyr Glu Asn
1   5   10   15

Glu Asp Glu Glu Tyr Pro Gln Asn His His Lys Asn Tyr Asn Tyr Asp
            20   25   30

Asp Asp Asp Tyr Glu Tyr Asp Asp Asp Asn Asn Asp Asp Asp Phe Tyr
            35   40   45

Glu Met Asp
    50

<210> 43
<211> 41
<212> PRT
<213> C. jejuni

<220>
<221> misc_feature
<223> hypothetical protein Cj0344

<220>
<221> misc_feature
<223> gi|6967819

<400> 43

Met Phe Gln Asn Ile Ile Lys Tyr Lys Asp Phe Ile Ile Phe Ile Leu
1   5   10   15

Asn Leu Lys Gln Asn Leu Tyr Leu Leu Ile Lys Ile Asn Leu Asp Phe
                20   25   30

Lys Asn Phe His Lys Ser Leu Asn Phe
            35   40

<210> 44
<211> 37
<212> PRT
<213> C. jejuni

<220>
<221> misc_feature
<223> hypothetical protein Cj0567

<220>
<221> misc_feature
<223> gi|6968034

<400> 44

Met Asp Lys Ile Gln Glu Asn Thr Lys Ile Glu Lys Ala Ile Leu Ala
1   5   10   15

Glu Lys Gln Gln Ile Phe Leu Ile Gln Asn Lys Leu Ser Glu Ile Glu
                20   25   30

Lys Asn Ile Lys Glu
            35

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<210>  45
<211>  74
<212>  PRT
<213>  C. jejuni

<220>
<221>  misc_feature
<223>  small hydrophobic protein


<220>
<221>  misc_feature
<223>  gi|6968265


<400>  45

Met Leu Glu Phe Ile Phe Thr Leu Ile Leu Asp Phe Thr Phe Tyr Ser
1               5                   10                  15

Ile Lys Thr Leu Glu Lys Val Phe Leu Gly Arg Thr Ala Leu Val Ile
            20                  25                  30

Leu Phe Val Val Phe Ile Ala Leu Phe Cys Val Lys Gly Leu Phe Leu
        35                  40                  45

Tyr Ile Leu Leu Ala Leu Glu Leu Phe Leu Leu Leu Tyr Leu Phe Leu
    50                  55                  60

Gly Ile Leu Phe Leu Arg Phe Tyr Lys Ser
65                  70

<210>  46
<211>  46
<212>  PRT
<213>  C. jejuni

<220>
<221>  misc_feature
<223>  very hypothetical protein Cj0974


<220>
<221>  misc_feature
<223>  gi|6968409


<400>  46

Met Leu Lys Met Ile Lys Ile Gln Lys Val Lys Ser Leu Leu Asp Leu
1               5                   10                  15

Val Lys Lys Leu Lys Asn Lys Gln Ser Leu Lys Ile Lys Asn Gln Thr
            20                  25                  30
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Asn Thr Lys Glu Asn Leu Asn Lys Thr His Tyr Leu Thr Ile
          35   40   45

<210>   47
<211>   78
<212>   PRT
<213>   C. jejuni

<220>
<221>   misc_feature
<223>   very hypothetical protein

<220>
<221>   misc_feature
<223>   gi|6968423

<400>   47

Met Leu Lys Ile Pro Tyr Phe Ser Phe Leu Lys Leu Asp Phe Glu Ile
1   5   10   15

Tyr His Leu Asn Thr Ser Lys Asn Phe Tyr Gly Phe Phe Ile Leu Tyr
          20   25   30

Phe Ser Phe Phe Ile Phe Lys Leu Ile Tyr Lys Phe Ser Lys Ser Asn
          35   40   45

Lys Lys Ile Tyr Lys Lys Ile Ile Lys Leu Lys Lys Ile Ile Lys Asp
    50   55   60

Asn Lys Tyr Leu Ile Phe Leu Cys Tyr Ile Leu Ile Asn Ile
65   70   75

<210>   48
<211>   30
<212>   PRT
<213>   C. jejuni

<220>
<221>   misc_feature
<223>   hypothetical protein Cj0748

<220>
<221>   misc_feature
<223>   gi|6968200

<400>   48

Met Leu Glu Thr Leu Lys Lys Tyr Ala Glu Asn Gln Gly Ile Glu Asp
1   5   10   15

Asn Tyr Pro Lys Lys Ile Tyr Asn Gln Lys Glu Lys Lys Pro
            20   25   30

<210> 49
<211> 168
<212> PRT
<213> C. pneumoniae CWL029

<220>
<221> misc_feature
<223> CT670 hypothetical protein

<220>
<221> misc_feature
<223> gi|4377009

<400> 49

Met Ala Lys Tyr Pro Leu Glu Pro Val Leu Ala Ile Lys Lys Asp Arg
1   5   10   15

Val Asp Arg Ala Glu Lys Val Val Lys Glu Lys Arg Arg Leu Leu Glu
            20   25   30

Ile Glu Gln Glu Lys Leu Arg Glu Lys Glu Ala Glu Arg Asp Lys Val
            35   40   45

Lys Asn His Tyr Met Gln Lys Ile Gln Gln Leu Arg Asp Leu Leu Asp
    50   55   60

Glu Gly Thr Thr Ser Asp Ala Val Leu Gln Ile Lys Ser Tyr Ile Lys
65   70   75   80

Val Val Ala Val Gln Leu Ser Glu Glu Glu Glu Lys Val Asn Lys Gln
                85   90   95

Lys Glu Val Val Leu Ala Ala Ser Lys Glu Leu Glu Lys Ala Glu Val
                100   105   110

Asn Leu Ala Lys Arg Arg Lys Glu Glu Glu Lys Thr Arg Leu His Lys
            115   120   125

Glu Glu Trp Met Lys Glu Ala Leu Lys Glu Glu Ala Arg Ala Glu Glu
        130   135   140

Lys Glu Gln Asp Glu Met Gly Gln Leu Leu Phe Gln Leu Arg Gln Lys
145   150   155   160

Lys Lys Arg Glu Ser Gly Gly Ser
                165

<210> 50
<211> 444

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<212>   PRT
<213>   C. pneumoniae CWL029

<220>
<221>   misc_feature
<223>   CT579 hypothetical protein


<220>
<221>   misc_feature
<223>   gi|4377120


<400>   50

Met Thr Ser Gly Val Ser Gly Ser Ser Ser Gln Asp Pro Thr Leu Ala
1               5                   10                  15

Ala Gln Leu Ala Gln Ser Ser Gln Lys Ala Gly Asn Ala Gln Ser Gly
            20                  25                  30

His Asp Thr Lys Asn Val Thr Lys Gln Gly Ala Gln Ala Glu Val Ala
            35                  40                  45

Ala Gly Gly Phe Glu Asp Leu Ile Gln Asp Ala Ser Ala Gln Ser Thr
        50                  55                  60

Gly Lys Lys Glu Ala Thr Ser Ser Thr Thr Lys Ser Ser Lys Gly Glu
65                  70                  75                  80

Lys Ser Glu Lys Ser Gly Lys Ser Lys Ser Ser Thr Ser Val Ala Ser
                85                  90                  95

Ala Ser Glu Thr Ala Thr Ala Gln Ala Val Gln Gly Pro Lys Gly Leu
            100                 105                 110

Arg Gln Asn Asn Tyr Asp Ser Pro Ser Leu Pro Thr Pro Glu Ala Gln
            115                 120                 125

Thr Ile Asn Gly Ile Val Leu Lys Lys Gly Met Gly Thr Leu Ala Leu
        130                 135                 140

Leu Gly Leu Val Met Thr Leu Met Ala Asn Ala Ala Gly Glu Ser Trp
145                 150                 155                 160

Lys Ala Ser Phe Gln Ser Gln Asn Gln Ala Ile Arg Ser Gln Val Glu
                165                 170                 175

Ser Ala Pro Ala Ile Gly Glu Ala Ile Lys Arg Gln Ala Asn His Gln
            180                 185                 190

Ala Ser Ala Thr Glu Ala Gln Ala Lys Gln Ser Leu Ile Ser Gly Ile
            195                 200                 205

Val Asn Ile Val Gly Phe Thr Val Ser Val Gly Ala Gly Ile Phe Ser
```

Ala Ala Lys Gly Ala Thr Ser Ala Leu Lys Ser Ala Ser Phe Ala Lys
225   230   235   240

Glu Thr Gly Ala Ser Ala Ala Gly Gly Ala Ala Ser Lys Ala Leu Thr
              245   250   255

Ser Ala Ser Ser Ser Val Gln Gln Thr Met Ala Ser Thr Ala Lys Ala
              260   265   270

Ala Thr Thr Ala Ala Ser Ser Ala Gly Ser Ala Ala Thr Lys Ala Ala
              275   280   285

Ala Asn Leu Thr Asp Asp Met Ala Ala Ala Ser Lys Met Ala Ser
              290   295   300

Asp Gly Ala Ser Lys Ala Ser Gly Gly Leu Phe Gly Glu Val Leu Asn
305   310   315   320

Lys Pro Asn Trp Ser Glu Lys Val Ser Arg Gly Met Asn Val Val Lys
              325   330   335

Thr Gln Gly Ala Arg Val Ala Ser Phe Ala Gly Asn Ala Leu Ser Ser
              340   345   350

Ser Met Gln Met Ser Gln Leu Met His Gly Leu Thr Ala Ala Val Glu
              355   360   365

Gly Leu Ser Ala Gly Gln Thr Gly Ile Glu Val Ala His His Gln Arg
              370   375   380

Leu Ala Gly Gln Ala Glu Ala Gln Ala Glu Val Leu Lys Gln Met Ser
385   390   395   400

Ser Val Tyr Gly Gln Gln Ala Gly Gln Ala Gly Gln Leu Gln Glu Gln
              405   410   415

Ala Met Gln Ser Phe Asn Thr Ala Leu Gln Thr Leu Gln Asn Ile Ala
              420   425   430

Asp Ser Gln Thr Gln Thr Thr Ser Ala Ile Phe Asn
              435   440

<210> 51
<211> 493
<212> PRT
<213> C. pneumoniae CWL029

<220>
<221> misc_feature
<223> CT578 hypothetical protein

<220>

<221> misc_feature
<223> gi|4377121

<400> 51

Met Ser Ile Ser Ser Ser Ser Gly Pro Asp Asn Gln Lys Asn Ile Met
1   5   10   15

Ser Gln Val Leu Thr Ser Thr Pro Gln Gly Val Pro Gln Gln Asp Lys
          20   25   30

Leu Ser Gly Asn Glu Thr Lys Gln Ile Gln Gln Thr Arg Gln Gly Lys
          35   40   45

Asn Thr Glu Met Glu Ser Asp Ala Thr Ile Ala Gly Ala Ser Gly Lys
     50   55   60

Asp Lys Thr Ser Ser Thr Thr Lys Thr Glu Thr Ala Pro Gln Gln Gly
65   70   75   80

Val Ala Ala Gly Lys Glu Ser Ser Glu Ser Gln Lys Ala Gly Ala Asp
               85   90   95

Thr Gly Val Ser Gly Ala Ala Ala Thr Thr Ala Ser Asn Thr Ala Thr
          100   105   110

Lys Ile Ala Met Gln Thr Ser Ile Glu Glu Ala Ser Lys Ser Met Glu
          115   120   125

Ser Thr Leu Glu Ser Leu Gln Ser Leu Ser Ala Ala Gln Met Lys Glu
     130   135   140

Val Glu Ala Val Val Val Ala Ala Leu Ser Gly Lys Ser Ser Gly Ser
145   150   155   160

Ala Lys Leu Glu Thr Pro Glu Leu Pro Lys Pro Gly Val Thr Pro Arg
               165   170   175

Ser Glu Val Ile Glu Ile Gly Leu Ala Leu Ala Lys Ala Ile Gln Thr
          180   185   190

Leu Gly Glu Ala Thr Lys Ser Ala Leu Ser Asn Tyr Ala Ser Thr Gln
          195   200   205

Ala Gln Ala Asp Gln Thr Asn Lys Leu Gly Leu Glu Lys Gln Ala Ile
     210   215   220

Lys Ile Asp Lys Glu Arg Glu Glu Tyr Gln Glu Met Lys Ala Ala Glu
225   230   235   240

Gln Lys Ser Lys Asp Leu Glu Gly Thr Met Asp Thr Val Asn Thr Val
               245   250   255

Met Ile Ala Val Ser Val Ala Ile Thr Val Ile Ser Ile Val Ala Ala

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                    260                     265                     270

Ile Phe Thr Cys Gly Ala Gly Leu Ala Gly Leu Ala Ala Gly Ala Ala
        275                 280                 285

Val Gly Ala Ala Ala Ala Gly Gly Ala Ala Gly Ala Ala Ala Ala Thr
 .      290                 295                 300

Thr Val Ala Thr Gln Ile Thr Val Gln Ala Val Val Gln Ala Val Lys
305                 310                 315                 320

Gln Ala Val Ile Thr Ala Val Arg Gln Ala Ile Thr Ala Ala Ile Lys
                325                 330                 335

Ala Ala Val Lys Ser Gly Ile Lys Ala Phe Ile Lys Thr Leu Val Lys
        340                 345                 350

Ala Ile Ala Lys Ala Ile Ser Lys Gly Ile Ser Lys Val Phe Ala Lys
        355                 360                 365

Gly Thr Gln Met Ile Ala Lys Asn Phe Pro Lys Leu Ser Lys Val Ile
    370                 375                 380

Ser Ser Leu Thr Ser Lys Trp Val Thr Val Gly Val Gly Val Val Val
385                 390                 395                 400

Ala Ala Pro Ala Leu Gly Lys Gly Ile Met Gln Met Gln Leu Ser Glu
                405                 410                 415

Met Gln Gln Asn Val Ala Gln Phe Gln Lys Glu Val Gly Lys Leu Gln
                420                 425                 430

Ala Ala Ala Asp Met Ile Ser Met Phe Thr Gln Phe Trp Gln Gln Ala
        435                 440                 445

Ser Lys Ile Ala Ser Lys Gln Thr Gly Glu Ser Asn Glu Met Thr Gln
    450                 455                 460

Lys Ala Thr Lys Leu Gly Ala Gln Ile Leu Lys Ala Tyr Ala Ala Ile
465                 470                 475                 480

Ser Gly Ala Ile Ala Gly Ala His Lys Thr Asn Asn Phe
                485                 490
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<210>  52
<211>  76
<212>  PRT
<213>  C. pneumoniae CWL029

<220>
<221>  misc_feature
<223>  CT753 hypothetical protein


<220>
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<221> misc_feature
<223> gi|4377216

<400> 52

Met Arg Asn Met Glu Ala Lys Lys Ile Lys Glu Leu Ser Lys Glu Ala
1   5   10   15

Gln Leu Leu Lys Lys Leu Arg Glu Lys Ser Arg Val Leu Asp Glu Lys
            20   25   30

Asn Lys Arg Lys Ala Trp Val Ala Lys Leu Val Ala Met Pro Glu Ser
        35   40   45

Ile Arg Glu Ile Glu Lys Glu Glu Arg Val Glu Thr Pro Gln Leu Phe
    50   55   60

Gln Ala Ile Ala Glu Lys Ile Leu Glu Glu Gly Val
65   70   75

<210> 53
<211> 755
<212> PRT
<213> C. pneumoniae CWL029

<220>
<221> misc_feature
<223> CT456 hypothetical protein

<220>
<221> misc_feature
<223> gi|4376866

<400> 53

Met Ala Ala Pro Ile Asn Gln Pro Ser Thr Thr Thr Gln Ile Thr Gln
1   5   10   15

Thr Gly Gln Thr Thr Thr Thr Thr Thr Val Gly Ser Leu Gly Glu His
            20   25   30

Ser Val Thr Thr Thr Gly Ser Gly Ala Ala Ala Gln Thr Ser Gln Thr
        35   40   45

Val Thr Leu Ile Ala Asp His Glu Met Gln Glu Ile Ala Ser Gln Asp
    50   55   60

Gly Ser Ala Val Ser Phe Ser Ala Glu His Ser Phe Ser Thr Leu Pro
65   70   75   80

Pro Glu Thr Gly Ser Val Gly Ala Thr Ala Gln Ser Ala Gln Ser Ala
                85   90   95

Gly Leu Phe Ser Leu Ser Gly Arg Thr Gln Arg Arg Asp Ser Glu Ile
        100   105   110

Ser Ser Ser Ser Asp Gly Ser Ser Ile Ser Arg Thr Ser Ser Asn Ala
        115   120   125

Ser Ser Gly Glu Thr Ser Arg Ala Glu Ser Ser Pro Asp Leu Gly Asp
    130   135   140

Leu Asp Ser Leu Ser Gly Ser Glu Arg Ala Glu Gly Ala Glu Gly Pro
145   150   155   160

Glu Gly Pro Gly Gly Leu Pro Glu Ser Thr Ile Pro His Tyr Asp Pro
            165   170   175

Thr Asp Lys Ala Ser Ile Leu Asn Phe Leu Lys Asn Pro Ala Val Gln
        180   185   190

Gln Lys Met Gln Thr Lys Gly Gly His Phe Val Tyr Val Asp Glu Ala
        195   200   205

Arg Ser Ser Phe Ile Phe Val Arg Asn Gly Asp Trp Ser Thr Ala Glu
    210   215   220

Ser Ile Lys Val Ser Asn Ala Lys Thr Lys Glu Asn Ile Thr Lys Pro
225   230   235   240

Ala Asp Leu Glu Met Cys Ile Ala Lys Phe Cys Val Gly Tyr Glu Thr
            245   250   255

Ile His Ser Asp Trp Thr Gly Arg Val Lys Pro Thr Met Glu Glu Arg
            260   265   270

Ser Gly Ala Thr Gly Asn Tyr Asn His Leu Met Leu Ser Met Lys Phe
    275   280   285

Lys Thr Ala Val Val Tyr Gly Pro Trp Asn Ala Lys Glu Ser Ser Ser
    290   295   300

Gly Tyr Thr Pro Ser Ala Trp Arg Arg Gly Ala Lys Val Glu Thr Gly
305   310   315   320

Pro Ile Trp Asp Asp Val Gly Gly Leu Lys Gly Ile Asn Trp Lys Thr
            325   330   335

Thr Pro Ala Pro Asp Phe Ser Phe Ile Asn Glu Thr Pro Gly Gly Gly
        340   345   350

Ala His Ser Thr Ser His Thr Gly Pro Gly Thr Pro Val Gly Ala Thr
    355   360   365

Val Val Pro Asn Val Asn Val Asn Leu Gly Gly Ile Lys Val Asp Leu
    370   375   380

Gly Gly Ile Asn Leu Gly Gly Ile Thr Thr Asn Val Thr Thr Glu Glu
385   390   395   400

Gly Gly Gly Thr Asn Ile Thr Ser Thr Lys Ser Thr Ser Thr Asp Asp
                405   410   415

Lys Val Ser Ile Thr Ser Thr Gly Ser Gln Ser Thr Ile Glu Glu Asp
                420   425   430

Thr Ile Gln Phe Asp Asp Pro Gly Gln Gly Glu Asp Asp Asn Ala Ile
                435   440   445

Pro Gly Thr Asn Thr Pro Pro Pro Pro Gly Pro Pro Pro Asn Leu Ser
        450   455   460

Ser Ser Arg Leu Leu Thr Ile Ser Asn Ala Ser Leu Asn Gln Val Leu
465   470   475   480

Gln Asn Val Arg Gln His Leu Asn Thr Ala Tyr Asp Ser Asn Gly Asn
                485   490   495

Ser Val Ser Asp Leu Asn Gln Asp Leu Gly Gln Val Val Lys Asn Ser
                500   505   510

Glu Asn Gly Val Asn Phe Pro Thr Val Ile Leu Pro Lys Thr Thr Gly
        515   520   525

Asp Thr Asp Pro Ser Gly Gln Ala Thr Gly Gly Val Thr Glu Gly Gly
        530   535   540

Gly His Ile Arg Asn Ile Ile Gln Arg Asn Thr Gln Ser Thr Gly Gln
545   550   555   560

Ser Glu Gly Ala Thr Pro Thr Pro Gln Pro Thr Ile Ala Lys Ile Val
                565   570   575

Thr Ser Leu Arg Lys Ala Asn Val Ser Ser Ser Ser Val Leu Pro Gln
                580   585   590

Pro Gln Val Ala Thr Thr Ile Thr Pro Gln Ala Arg Thr Ala Ser Thr
                595   600   605

Ser Thr Thr Ser Ile Gly Thr Gly Thr Glu Ser Thr Ser Thr Thr Ser
        610   615   620

Thr Gly Thr Gly Thr Gly Ser Val Ser Thr Gln Ser Thr Gly Val Gly
625   630   635   640

Thr Pro Thr Thr Thr Thr Arg Ser Thr Gly Thr Ser Ala Thr Thr Thr
                645   650   655

Thr Ser Ser Ala Ser Thr Gln Thr Pro Gln Ala Pro Leu Pro Ser Gly
        660   665   670

Thr Arg His Val Ala Thr Ile Ser Leu Val Arg Asn Ala Ala Gly Arg

```
                 675                    680                    685
     Ser Ile Val Leu Gln Gln Gly Gly Arg Ser Gln Ser Phe Pro Ile Pro
         690                 695                 700

     Pro Ser Gly Thr Gly Thr Gln Asn Met Gly Ala Gln Leu Trp Ala Ala
     705                 710                 715                 720

     Ala Ser Gln Val Ala Ser Thr Leu Gly Gln Val Val Asn Gln Ala Ala
                     725                 730                 735

     Thr Ala Gly Ser Gln Pro Ser Ser Arg Arg Ser Ser Pro Thr Ser Pro
                 740                 745                 750

     Arg Arg Lys
             755


     <210>  54
     <211>  221
     <212>  PRT
     <213>  C. pneumoniae CWL029

     <220>
     <221>  misc_feature
     <223>  SET Domain protein


     <220>
     <221>  misc_feature
     <223>  gi|4377196


     <400>  54

     Met Ser Thr Val Thr Thr Glu Pro Cys Ser Ser Ile His Ile Ser Leu
     1                   5                   10                  15

     Asn Asn Asp Trp Arg Asp Ser Gln Pro Tyr Ser Leu Asp Arg Ala Ser
                 20                  25                  30

     Glu Leu Leu His Phe Arg Phe Leu Pro Ser Leu Val Phe Ser Asn Trp
             35                  40                  45

     Lys Val Glu Gln Gln Ile Glu Thr Leu Cys His Lys Ser Glu Lys Arg
         50                  55                  60

     Arg Leu Ile Ser Pro Leu Ala Lys Trp Leu Gly Lys Leu His Lys Gln
     65                  70                  75                  80

     Asp Leu Leu Cys Pro Pro Ala Pro Pro Val Ser Val Cys Trp Ile Asn
                     85                  90                  95

     Ala His Val Gly Tyr Gly Val Phe Ala Arg Asp Glu Ile Ala Pro Trp
                 100                 105                 110
```

Thr Tyr Ile Gly Glu Tyr Thr Gly Ile Leu Arg His Arg Gln Ala Ile
        115   120   125

Trp Met Asp Glu Asn Asp Tyr Cys Phe Arg Tyr Pro Met Pro Leu Phe
        130   135   140

Thr Leu Arg Tyr Phe Thr Ile Asp Ser Gly Lys Gln Gly Asn Val Thr
145   150   155   160

Arg Phe Ile Asn His Ser Glu Gln Pro Asn Ala Glu Ala Ile Gly Val
                165   170   175

Phe Ser Glu Gly Leu Phe His Val Ile Ile Arg Thr Val Ala Pro Ile
                180   185   190

Tyr Ala Gly Gln Glu Ile Cys Tyr His Tyr Gly Pro Leu Tyr Trp Lys
        195   200   205

His Arg Lys Lys Arg Glu Glu Phe Ile Pro Glu Glu Glu
        210   215   220

<210> 55
<211> 98
<212> PRT
<213> C. pneumoniae CWL029

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|4376483

<400> 55

Met Ser Tyr Pro Asp Ile Ser Asn Val Gln Ala Ser Ser Ile Gln Ser
1   5   10   15

Ala Leu Leu His Lys Thr Ser Asp Gln Ile Gln Gln Lys Arg Cys Phe
                20   25   30

Lys Gln Ser Thr Phe Val Ile Leu Ala Val Ser Leu Val Ile Ile Gly
        35   40   45

Ser Leu Phe Leu Leu Ala Gly Val Ala Ile Leu Thr Val Phe Ser His
        50   55   60

Gly Val Leu Ser Leu Val Phe Gly Val Leu Gly Ile Val Leu Gly Leu
65   70   75   80

Leu Leu Leu Ala Gly Gly Val Gly Leu Leu Val Glu Glu Ala Lys Ser
                85   90   95

Leu Leu

<210> 56
<211> 64
<212> PRT
<213> C. pneumoniae CWL029

<220>
<221> misc_feature
<223> CT382.1 hypothetical protein

<220>
<221> misc_feature
<223> gi|4376770

<400> 56

Met Ile Lys Gln Ala Cys Lys Phe Tyr Leu Leu Gln Cys Leu Leu Cys
1   5   10   15

Ala Leu Tyr Trp Leu Leu Lys Tyr Cys Arg Lys Leu Leu Lys Gly Thr
            20   25   30

Leu His His Ser Glu Glu Thr Leu Tyr Gln Ala Leu Leu Ser Ser Leu
        35   40   45

Ile Asp Leu Leu Tyr Gln Leu Lys Gln Leu Pro Ala Pro Thr Asn Glu
    50   55   60

<210> 57
<211> 50
<212> PRT
<213> C. pneumoniae CWL029

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|4376779

<400> 57

Met Arg Thr Tyr Thr Arg Ser Pro Lys Gln Ser Gly Val Glu Arg Lys
1   5   10   15

Gln Glu Asp Ala Glu Thr Ser Phe Ile Glu Thr Pro Lys Gly Ile Leu
            20   25   30

```
Lys Lys Pro Gly Asn Lys Asp Pro Lys Gly Lys His Val His Trp Lys
        35              40              45

Asp Ser
    50


<210>   58
<211>   775
<212>   PRT
<213>   C. pneumoniae CWL029


<220>
<221>   misc_feature
<223>   hypothetical protein


<220>
<221>   misc_feature
<223>   gi|4376756


<400>   58

Met Ala Ser Gly Ile Gly Gly Ser Ser Gly Leu Gly Lys Ile Pro Pro
1               5               10              15

Lys Asp Asn Gly Asp Arg Ser Arg Ser Pro Ser Pro Lys Gly Glu Leu
            20              25              30

Gly Ser His Glu Ile Ser Leu Pro Pro Gln Glu His Gly Glu Glu Gly
        35              40              45

Ala Ser Gly Ser Ser His Ile His Ser Ser Ser Ser Phe Leu Pro Glu
    50              55              60

Asp Gln Glu Ser Gln Ser Ser Ser Ser Ala Ala Ser Ser Pro Gly Phe
65              70              75              80

Phe Ser Arg Val Arg Ser Gly Val Asp Arg Ala Leu Lys Ser Phe Gly
            85              90              95

Asn Phe Phe Ser Ala Glu Ser Thr Ser Gln Ala Arg Glu Thr Arg Gln
            100             105             110

Ala Phe Val Arg Leu Ser Lys Thr Ile Thr Ala Asp Glu Arg Arg Asp
        115             120             125

Val Asp Ser Ser Ser Ala Ala Ala Thr Glu Ala Arg Val Ala Glu Asp
    130             135             140

Ala Ser Val Ser Gly Glu Asn Pro Ser Gln Gly Val Pro Glu Thr Ser
145             150             155             160

Ser Gly Pro Glu Pro Gln Arg Leu Phe Ser Leu Pro Ser Val Lys Lys
```

Gln Ser Gly Leu Gly Arg Leu Val Gln Thr Val Arg Asp Arg Ile Val
        180   185   190

Leu Pro Ser Gly Ala Pro Pro Thr Asp Ser Glu Pro Leu Ser Leu Tyr
        195   200   205

Glu Leu Asn Leu Arg Leu Ser Ser Leu Arg Gln Glu Leu Ser Asp Ile
    210   215   220

Gln Ser Asn Asp Gln Leu Thr Pro Glu Glu Lys Ala Glu Ala Thr Val
225   230   235   240

Thr Ile Gln Gln Leu Ile Gln Ile Thr Glu Phe Gln Cys Gly Tyr Met
                245   250   255

Glu Ala Thr Gln Ser Ser Val Ser Leu Ala Glu Ala Arg Phe Lys Gly
            260   265   270

Val Glu Thr Ser Asp Glu Ile Asn Ser Leu Cys Ser Glu Leu Thr Asp
            275   280   285

Pro Glu Leu Gln Glu Leu Met Ser Asp Gly Asp Ser Leu Gln Asn Leu
    290   295   300

Leu Asp Glu Thr Ala Asp Asp Leu Glu Ala Ala Leu Ser His Thr Arg
305   310   315   320

Leu Ser Phe Ser Leu Asp Asp Asn Pro Thr Pro Ile Asp Asn Asn Pro
                325   330   335

Thr Leu Ile Ser Gln Glu Glu Pro Ile Tyr Glu Glu Ile Gly Gly Ala
                340   345   350

Ala Asp Pro Gln Arg Thr Arg Glu Asn Trp Ser Thr Arg Leu Trp Asn
        355   360   365

Gln Ile Arg Glu Ala Leu Val Ser Leu Leu Gly Met Ile Leu Ser Ile
        370   375   380

Leu Gly Ser Ile Leu His Arg Leu Arg Ile Ala Arg His Ala Ala Ala
385   390   395   400

Glu Ala Val Gly Arg Cys Cys Thr Cys Arg Gly Glu Glu Cys Thr Ser
            405   410   415

Ser Glu Glu Asp Ser Met Ser Val Gly Ser Pro Ser Glu Ile Asp Glu
            420   425   430

Thr Glu Arg Thr Gly Ser Pro His Asp Val Pro Arg Arg Asn Gly Ser
        435   440   445

Pro Arg Glu Asp Ser Pro Leu Met Asn Ala Leu Val Gly Trp Ala His
    450   455   460

Lys His Gly Ala Lys Thr Lys Glu Ser Ser Glu Ser Ser Thr Pro Glu
465   470   475   480

Ile Ser Ile Ser Ala Pro Ile Val Arg Gly Trp Ser Gln Asp Ser Ser
                485   490   495

Val Ser Phe Ile Val Met Glu Asp Asp His Ile Phe Tyr Asp Val Pro
            500   505   510

Arg Arg Lys Asp Gly Ile Tyr Asp Val Pro Ser Ser Pro Arg Trp Ser
        515   520   525

Pro Ala Arg Glu Leu Glu Glu Asp Val Phe Gly Asp Tyr Glu Val Pro
    530   535   540

Ile Thr Ser Ala Glu Pro Ser Lys Asp Lys Asn Ile Tyr Met Thr Pro
545   550   555   560

Arg Leu Ala Thr Pro Ala Ile Tyr Asp Leu Pro Ser Arg Pro Gly Ser
            565   570   575

Ser Gly Ser Ser Arg Ser Pro Ser Ser Asp Arg Val Arg Ser Ser Ser
        580   585   590

Pro Asn Arg Arg Gly Val Pro Leu Pro Pro Val Pro Ser Pro Ala Met
        595   600   605

Ser Glu Glu Gly Ser Ile Tyr Glu Asp Met Ser Gly Ala Ser Gly Ala
    610   615   620

Gly Glu Ser Asp Tyr Glu Asp Met Ser Arg Ser Pro Ser Pro Arg Gly
625   630   635   640

Asp Leu Asp Glu Pro Ile Tyr Ala Asn Thr Pro Glu Asp Asn Pro Phe
            645   650   655

Thr Gln Arg Asn Ile Asp Arg Ile Leu Gln Glu Arg Ser Gly Gly Ala
        660   665   670

Ser Ala Ser Pro Val Glu Pro Ile Tyr Asp Glu Ile Pro Trp Ile His
        675   680   685

Gly Arg Pro Pro Ala Thr Leu Pro Arg Pro Glu Asn Thr Leu Thr Asn
    690   695   700

Val Ser Leu Arg Val Ser Pro Gly Phe Gly Pro Glu Val Arg Ala Ala
705   710   715   720

Leu Leu Ser Glu Ser Val Ser Ala Val Met Val Glu Ala Glu Ser Ile
            725   730   735

Val Pro Pro Thr Glu Pro Gly Asp Gly Glu Ser Glu Tyr Leu Glu Pro
        740   745   750

Leu Gly Gly Leu Val Ala Thr Thr Lys Ile Leu Leu Gln Lys Gly Trp
        755   760   765

Pro Arg Gly Glu Ser Asn Ala
    770   775

<210> 59
<211> 104
<212> PRT
<213> C. trachomatis

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|3328515

<400> 59

Met Gly Asp Val Met Ile Gln Ser Val Lys Thr Glu Ser Gly Leu Val
1   5   10   15

Glu Gly His Arg Gly Ile Cys Asp Ser Leu Gly Arg Val Val Gly Ala
            20   25   30

Leu Ala Lys Val Ala Lys Leu Val Val Ala Leu Ala Ala Leu Val Leu
        35   40   45

Asn Gly Ala Leu Cys Val Leu Ser Leu Val Ala Leu Cys Val Gly Ala
    50   55   60

Thr Pro Val Gly Pro Leu Ala Val Leu Val Ala Thr Thr Leu Ala Ser
65   70   75   80

Phe Leu Cys Ala Ala Cys Val Leu Phe Ile Ala Ala Lys Asp Arg Gly
                85   90   95

Trp Ile Ala Ser Thr Asn Lys Cys
            100

<210> 60
<211> 439
<212> PRT
<213> C. trachomatis

<220>
<221> misc_feature
<223> hypothetical protein

<220>

<221> misc_feature
<223> gi|3329021

<400> 60

Met Thr Thr Gly Val Arg Gly Asp Asn Ala Pro Asp Pro Ser Leu Leu
1   5   10   15

Ala Gln Leu Thr Gln Asn Ala Asn Ser Ala Ser Ala Ala Ser Thr Gly
            20   25   30

Lys Asn Gly Gln Val Ala Gly Ala Lys Gln Glu Asn Val Asp Ala Ser
            35   40   45

Phe Glu Asp Leu Leu Gln Asp Ala Gln Gly Thr Gly Gly Ser Lys Lys
        50   55   60

Ala Thr Ala Asn Gln Thr Ser Lys Ser Gly Lys Ser Glu Lys Ala Gln
65   70   75   80

Ala Ser Ser Gly Thr Ser Thr Thr Thr Ser Val Ala Gln Ala Ser Gln
                85   90   95

Thr Ala Thr Ala Gln Ala Val His Gly Ala Arg Asp Ser Gly Phe Asn
            100   105   110

Ser Asp Gly Ser Ala Thr Leu Pro Ser Pro Thr Gly Thr Glu Val Asn
            115   120   125

Gly Val Val Leu Arg Lys Gly Met Gly Thr Leu Ala Leu Met Gly Leu
        130   135   140

Ile Met Thr Leu Leu Ala Gln Ala Ser Ala Lys Ser Trp Ser Ser Ser
145   150   155   160

Phe Gln Gln Gln Asn Gln Ala Ile Gln Asn Gln Val Ala Met Ala Pro
                165   170   175

Glu Ile Gly Asn Ala Ile Arg Thr Gln Ala Asn His Gln Ala Gln Ala
                180   185   190

Thr Glu Leu Gln Ala Gln Gln Ser Leu Ile Ser Gly Ile Thr Asn Ile
            195   200   205

Val Gly Phe Ala Val Ser Val Gly Gly Gly Ile Leu Ser Ala Ser Lys
        210   215   220

Ser Leu Gly Gly Leu Lys Ser Ala Ala Phe Thr Asn Glu Thr Ala Ser
225   230   235   240

Ala Thr Thr Ser Ala Thr Ser Ser Leu Ala Lys Thr Ala Thr Ser Ala
                245   250   255

Leu Asp Asp Val Ala Gly Thr Ala Thr Ala Val Gly Ala Lys Ala Thr

```
                  260                     265                     270

Ser Gly Ala Ala Ser Ala Ala Ser Ser Ala Ala Thr Lys Leu Thr Gln
        275                 280                 285

Asn Met Ala Glu Ser Ala Ser Lys Thr Leu Ser Gln Thr Ala Ser Lys
    290                 295                 300

Ser Ala Gly Gly Leu Phe Gly Gln Ala Leu Asn Thr Pro Ser Trp Ser
305                 310                 315                 320

Glu Lys Val Ser Arg Gly Met Asn Val Val Lys Thr Gln Gly Thr Arg
                325                 330                 335

Ala Ala Lys Phe Ala Gly Arg Ala Leu Ser Ser Ala Met Asn Ile Ser
            340                 345                 350

Gln Met Val His Gly Leu Thr Ala Gly Ile Asp Gly Ile Val Gly Gly
        355                 360                 365

Val Ile Gly Ala Gln Val Ala Gln Glu Gln Arg Met Ala Gly Met Ala
    370                 375                 380

Glu Ala Arg Ala Glu Glu Leu Lys Ser Leu Asn Ser Val Gln Ala Gln
385                 390                 395                 400

Tyr Ala Ser Gln Ala Gln Gln Leu Gln Glu Gln Ser Gln Gln Ser Phe
                405                 410                 415

Asn Ser Ala Leu Gln Thr Leu Gln Ser Ile Ser Asp Ser Ala Leu Gln
            420                 425                 430

Thr Thr Ala Ser Met Phe Asn
            435

<210>  61
<211>  168
<212>  PRT
<213>  C. trachomatis

<220>
<221>  misc_feature
<223>  hypothetical protein


<220>
<221>  misc_feature
<223>  gi|3329121


<400>  61

Met Val Arg Tyr Pro Leu Glu Pro Val Leu Ser Ile Lys Lys Asp Arg
1               5                   10                  15
```

Val Asp Arg Ala Glu Lys Val Val Lys Glu Lys Arg Arg Leu Leu Glu
            20   25   30

Leu Glu Gln Glu Lys Leu Arg Glu Arg Glu Ser Glu Arg Asp Lys Val
            35   40   45

Lys Asn His Tyr Met Gln Lys Ile Arg Gln Leu Arg Glu Gln Leu Asp
        50   55   60

Asp Gly Thr Thr Ser Asp Ala Ile Leu Lys Met Lys Ala Tyr Ile Lys
65   70   75   80

Val Val Ala Ile Gln Leu Ser Glu Glu Glu Lys Val Asn Lys Gln
            85   90   95

Lys Glu Asn Val Leu Ala Ala Ser Lys Glu Leu Glu Arg Ala Glu Val
            100   105   110

Glu Leu Thr Lys Arg Arg Lys Glu Glu Glu Lys Thr Arg Leu His Lys
            115   120   125

Glu Glu Trp Met Lys Glu Ala Leu Lys Glu Glu Ala Arg Gln Glu Glu
        130   135   140

Lys Glu Gln Asp Glu Met Gly Gln Leu Leu His Gln Leu His Lys Gln
145   150   155   160

Lys Gln Arg Glu Ser Gly Glu Asn
                165

<210> 62
<211> 819
<212> PRT
<213> H. influenzae

<220>
<221> misc_feature
<223> conserved hypothetical protein

<220>
<221> misc_feature
<223> gi|1574537

<400> 62

Met Ala Asp Val Leu Ser Arg Phe Asn Ser Gly Lys Leu Trp Asp Phe
1   5   10   15

Lys Gly Gly Ile His Pro Pro Glu Met Lys Ser Gln Ser Asn Ser Gln
            20   25   30

Pro Leu Arg His Leu Pro Leu Gly Thr Asp Phe Tyr Ile Pro Leu Lys
        35   40   45

```
Gln His Leu Gly Thr Thr Gly Asn Leu Leu Ile Lys Glu Gly Asp Tyr
    50                  55                  60

Val Leu Lys Gly Gln Ala Leu Thr Lys Gly Asp Gly Leu Arg Met Leu
65                  70                  75                  80

Pro Val His Ala Pro Thr Ser Gly Thr Ile Lys Ser Ile Lys Pro Tyr
                85                  90                  95

Val Ala Thr His Pro Ser Gly Leu Asp Glu Pro Thr Ile His Leu Gln
            100                 105                 110

Ala Asp Gly Leu Asp Gln Trp Ile Glu Arg Asn Pro Ile Asp Asp Phe
            115                 120                 125

Ser Thr Leu Ser Ser Glu Gln Leu Ile His Lys Ile Tyr Gln Ala Gly
    130                 135                 140

Ile Ala Gly Leu Gly Gly Ala Val Phe Pro Thr Ala Ala Lys Ile Gln
145                 150                 155                 160

Ser Ala Glu Gln Lys Val Lys Leu Leu Ile Ile Asn Gly Ala Glu Cys
                165                 170                 175

Glu Pro Tyr Ile Thr Cys Asp Asp Arg Leu Met Arg Glu Arg Ala Asp
            180                 185                 190

Glu Ile Ile Lys Gly Ile Arg Ile Leu Arg Tyr Ile Leu His Pro Glu
            195                 200                 205

Lys Val Val Ile Ala Ile Glu Asp Asn Lys Pro Glu Ala Ile Ser Ala
    210                 215                 220

Ile Arg Asn Ala Leu Gln Gly Ala Asn Asp Ile Ser Ile Arg Val Ile
225                 230                 235                 240

Pro Thr Lys Tyr Pro Ser Gly Ala Thr Lys Gln Leu Ile Tyr Leu Leu
                245                 250                 255

Thr Gly Ile Glu Val Pro Ser Gly Glu Arg Ser Ser Ser Ile Gly Val
            260                 265                 270

Leu Met Gln Asn Val Gly Thr Met Phe Ala Ile Lys Arg Ala Ile Ile
            275                 280                 285

Asn Asp Glu Pro Leu Ile Glu Arg Val Val Thr Leu Thr Gly Asn Lys
    290                 295                 300

Ile Ala Glu Lys Gly Asn Tyr Trp Val Arg Leu Gly Thr Pro Ile Ser
305                 310                 315                 320

Gln Ile Leu Ser Asp Ala Gly Tyr Gln Phe Asp Lys His Phe Pro Ile
                325                 330                 335
```

Phe Ala Gly Gly Pro Met Met Gly Leu Glu Leu Pro Asn Leu Asn Ala
            340   345   350

Pro Val Thr Lys Leu Val Asn Cys Leu Leu Ala Pro Asp Tyr Leu Glu
            355   360   365

Tyr Ala Glu Pro Glu Ala Glu Gln Ala Cys Ile Arg Cys Ser Ser Cys
    370   375   380

Ser Asp Ala Cys Pro Val Asn Leu Met Pro Gln Gln Leu Tyr Trp Phe
385   390   395   400

Ala Arg Ser Glu Asp His Lys Lys Ser Glu Glu Tyr Ala Leu Lys Asp
            405   410   415

Cys Ile Glu Cys Gly Ile Cys Ala Tyr Val Cys Pro Ser His Ile Pro
            420   425   430

Leu Ile Gln Tyr Phe Arg Gln Glu Lys Ala Lys Ile Trp Gln Ile Lys
            435   440   445

Glu Lys Gln Lys Lys Ser Asp Glu Ala Lys Ile Arg Phe Glu Ala Lys
    450   455   460

Gln Ala Arg Met Glu Arg Glu Glu Gln Glu Arg Lys Ala Arg Ser Gln
465   470   475   480

Arg Ala Ala Gln Ala Arg Arg Glu Glu Leu Ala Gln Thr Lys Gly Glu
            485   490   495

Asp Pro Val Lys Ala Ala Leu Glu Arg Leu Lys Ala Lys Lys Ala Asn
            500   505   510

Glu Thr Glu Ser Thr Gln Ile Lys Thr Leu Thr Ser Glu Lys Gly Glu
            515   520   525

Val Leu Pro Asp Asn Thr Asp Leu Met Ala Gln Arg Lys Ala Arg Arg
    530   535   540

Leu Ala Arg Gln Gln Ala Ala Ser Gln Val Glu Asn Gln Glu Gln Gln
545   550   555   560

Thr Gln Pro Thr Asn Ala Lys Lys Ala Ala Val Ala Ala Ala Leu Ala
            565   570   575

Arg Ala Lys Ala Lys Lys Leu Ala Gln Ala Asn Ser Thr Ser Glu Ala
            580   585   590

Ile Ser Asn Ser Gln Thr Ala Glu Asn Gln Val Glu Lys Thr Lys Ser
            595   600   605

Ala Val Glu Lys Thr Gln Glu Asn Ser Thr Ala Leu Asp Pro Lys Lys
    610   615   620

Ala Ala Val Ala Ala Ala Ile Ala Arg Ala Lys Ala Lys Lys Leu Ala

Gln Thr Asn Ser Thr Ser Glu Ala Ile Ser Asn Ser Gln Thr Ala Glu
                    645   650   655

Asn Glu Val Glu Lys Thr Lys Ser Ala Val Glu Lys Thr Glu Glu Asn
                660   665   670

Ser Thr Ala Leu Asp Ala Lys Lys Ala Ala Ile Ala Ala Ala Ile Ala
            675   680   685

Arg Ala Lys Ala Lys Lys Leu Ala Gln Ala Asn Ser Ala Ser Glu Ala
        690   695   700

Ile Ser Asn Ser Gln Thr Ala Glu Asn Glu Val Glu Lys Thr Lys Ser
705   710   715   720

Ala Val Glu Lys Thr Gln Gln Asn Ser Thr Ala Leu Asp Pro Lys Lys
                725   730   735

Ala Ala Val Ala Ala Ala Ile Ala Arg Ala Lys Ala Lys Lys Leu Ala
                740   745   750

Gln Ala Asn Ser Thr Ser Glu Ala Ile Ser Asn Ser Gln Thr Ala Glu
            755   760   765

Asn Glu Val Glu Lys Thr Lys Ser Ala Val Glu Lys Thr Gln Glu Asn
        770   775   780

Ser Thr Ala Leu Asp Pro Lys Lys Ala Ala Val Ala Ala Ala Ile Ala
785   790   795   800

Arg Ala Lys Ala Lys Lys Leu Ala Lys Thr Gln Ala Thr Leu Glu Asn
                805   810   815

Asn Gln Glu

<210> 63
<211> 52
<212> PRT
<213> H. influenzae

<220>
<221> misc_feature
<223> predicted coding region HI1562

<220>
<221> misc_feature
<223> gi|1574414

<400> 63

Met Leu Ser Lys Asp Pro Lys Val Leu Ile Lys Leu Gly Glu Leu Glu
1   5   10   15

Lys Asp Lys Ser Lys Ala Lys Lys Tyr Phe Gly Asp Ala Cys Asp Leu
            20   25   30

Arg Ser Gln Glu Gly Cys Asp Lys Tyr Arg Glu Leu Asn Gln Lys Gln
        35   40   45

Asp Thr Asn Lys
        50

<210>   64
<211>   150
<212>   PRT
<213>   H. influenzae

<220>
<221>   misc_feature
<223>   conserved hypothetical protein

<220>
<221>   misc_feature
<223>   gi|1574625

<400>   64

Met Thr Leu Gln Leu Asn Thr Ile Ala Leu Leu Leu Val Ile Leu Leu
1   5   10   15

Ile Leu Gly Val Leu Ser Asn Asn Ser Thr Ile Thr Ile Ser Ala Ala
            20   25   30

Val Leu Leu Ile Met Gln Gln Thr Phe Leu Ser Ser His Ile Pro Leu
        35   40   45

Leu Glu Lys Tyr Gly Val Lys Ile Gly Ile Ile Ile Leu Thr Ile Gly
        50   55   60

Val Leu Ser Pro Leu Val Ser Gly Lys Ile Gln Leu Pro Asp Leu Ser
65   70   75   80

Gly Phe Leu Ser Trp Lys Met Ala Leu Ser Ile Ser Val Gly Val Leu
                85   90   95

Val Ala Trp Leu Ala Gly Lys Gly Val Pro Leu Met Gly Glu Gln Pro
            100   105   110

Ile Leu Val Thr Gly Leu Leu Ile Gly Thr Ile Ile Gly Val Ala Phe
        115   120   125

Leu Gly Gly Ile Pro Val Gly Pro Leu Ile Ala Ala Gly Ile Leu Ala
    130   135   140

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Leu Leu Leu Gly Lys Ile
145   150

<210> 65
<211> 129
<212> PRT
<213> H. influenzae

<220>
<221> misc_feature
<223> predicted coding region HI1339

<220>
<221> misc_feature
<223> gi|1574799

<400> 65

Met Glu Lys Ile Met Lys Lys Leu Thr Leu Ala Leu Val Leu Gly Ser
1   5   10   15

Ala Leu Val Val Thr Gly Cys Phe Asp Lys Gln Glu Ala Lys Gln Lys
            20   25   30

Val Glu Asp Thr Lys Gln Thr Val Ala Ser Val Ala Ser Glu Thr Lys
        35   40   45

Asp Ala Ala Ala Asn Thr Met Thr Glu Val Lys Glu Lys Ala Gln Gln
    50   55   60

Leu Ser Thr Asp Val Lys Asn Lys Val Ala Glu Lys Val Glu Asp Ala
65   70   75   80

Lys Glu Val Ile Lys Ser Ala Thr Glu Ala Ala Ser Glu Lys Val Gly
                85   90   95

Glu Met Lys Glu Ala Ala Ser Glu Lys Ala Ser Glu Met Lys Glu Ala
            100   105   110

Val Ser Glu Lys Ala Thr Gln Ala Val Asp Ala Val Lys Glu Ala Thr
            115   120   125

Lys

<210> 66
<211> 136
<212> PRT
<213> H. influenzae

<220>
<221> misc_feature

85/155

<223> predicted coding region HI1462.1

<220>
<221> misc_feature
<223> gi|3212225

<400> 66

Met Xaa Gln Ser Asn Tyr Ser Met Glu Lys Ile Met Lys Lys Leu Thr
1   5   10   15

Leu Ala Leu Val Leu Gly Ser Ala Leu Val Val Thr Gly Cys Phe Asp
            20   25   30

Lys Gln Glu Ala Lys Gln Lys Val Glu Asp Thr Lys Gln Thr Val Ala
            35   40   45

Ser Val Ala Ser Glu Thr Lys Asp Ala Ala Ala Asn Thr Met Thr Glu
        50   55   60

Val Lys Glu Lys Ala Gln Gln Leu Ser Thr Asp Val Lys Asn Lys Val
65   70   75   80

Ala Glu Lys Val Glu Asp Ala Lys Glu Val Ile Lys Ser Ala Thr Glu
                85   90   95

Ala Ala Ser Glu Lys Val Gly Glu Met Lys Glu Ala Ala Ser Glu Lys
            100   105   110

Ala Ser Glu Met Lys Glu Ala Val Ser Glu Lys Ala Thr Gln Ala Val
        115   120   125

Asp Ala Val Lys Glu Ala Thr Lys
    130   135

<210> 67
<211> 113
<212> PRT
<213> H. influenzae

<220>
<221> misc_feature
<223> conserved hypothetical protein

<220>
<221> misc_feature
<223> gi|1574607

<400> 67

Met Phe Thr Asp Trp Lys Glu His Thr Ser His Val Lys Lys Ser Phe

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      1               5                          10                         15

   Gly Glu Leu Gly Lys Gln Tyr Pro Lys Met Leu Gln Ala Tyr Gln Ala
                20                  25                  30

   Leu Gly Ala Ala Ala Ala Glu Gly Asn Val Leu Asp Ala Lys Thr Arg
                35                  40                  45

   Glu Leu Ile Ala Leu Ala Val Ala Val Thr Thr Arg Cys Glu Ser Cys
        50                  55                  60

   Ile Ser Ala His Ala Glu Glu Ala Val Lys Ala Gly Ala Ser Glu Ala
   65                  70                  75                  80

   Glu Val Ala Ala Ala Leu Ala Thr Ala Ile Ala Leu Asn Ala Gly Ala
                85                  90                  95

   Ala Tyr Thr Tyr Ser Leu Arg Ala Leu Glu Ala Tyr Ser Val Gln Lys
                100                 105                 110

   Ala


   <210>  68
   <211>  33
   <212>  PRT
   <213>  H. pylori

   <220>
   <221>  misc_feature
   <223>  predicted coding region HP0131


   <220>
   <221>  misc_feature
   <223>  gi|2313229


   <400>  68

   Met Pro Tyr Pro Phe Met Ser Phe Lys Gln Thr Phe Tyr Tyr Lys Met
   1               5                   10                  15

   Glu Ser Lys Thr Met Lys Glu Arg Phe Lys Thr Leu Phe Phe Lys Ile
                20                  25                  30

   Phe


   <210>  69
   <211>  12
   <212>  PRT
   <213>  H. pylori

   <220>
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<221> misc_feature
<223> predicted coding region HP0429

<220>
<221> misc_feature
<223> gi|2313552

<400> 69

Met Asn Glu Asn Gly Lys Lys Glu Ala Leu Gln Leu
1   5   10

<210> 70
<211> 26
<212> PRT
<213> H. pylori

<220>
<221> misc_feature
<223> predicted coding region HP0560

<220>
<221> misc_feature
<223> gi|2313684

<400> 70

Met Gly Ile Ile Tyr Leu Ile Leu Phe Leu Ile Val Ile Tyr Leu Leu
1   5   10   15

Tyr Arg Ile Leu Asp Val Leu Glu Gln Lys
            20   25

<210> 71
<211> 48
<212> PRT
<213> H. pylori

<220>
<221> misc_feature
<223> predicted coding region HP0756

<220>
<221> misc_feature
<223> gi|2313894

<400> 71

Met Lys Asp Tyr Glu Asp Glu Leu Glu Asp Phe Glu Glu Glu Glu Leu

```
1                5                        10                     15

Glu Gly Phe Glu Glu Glu Asp Glu Glu Tyr Gly Asp Tyr Lys Asn Val
            20                25                30


Tyr Asp Asp Asp Asp Tyr Glu Asp Tyr Asn Ser Asp Tyr Glu Glu Glu
        35                40                45

<210>   72
<211>   23
<212>   PRT
<213>   H. pylori

<220>
<221>   misc_feature
<223>   predicted coding region HP1500


<220>
<221>   misc_feature
<223>   gi|2314686


<400>   72

Met Cys Ser Asn Ser Ser Ser Leu Lys Ile Tyr Ser Leu Glu Ser Asn
1               5                        10                     15

Phe Ser Phe Asn Ser Leu Phe
            20

<210>   73
<211>   1805
<212>   PRT
<213>   M. genitalium

<220>
<221>   misc_feature
<223>   gi|1045905


<400>   73

Met Lys Pro Phe Asp Lys Lys Pro Ser Leu Gln Pro Ile Tyr Asp Ile
1               5                        10                     15

Gly Phe Asp Asp Gly Tyr Leu Gln Ser Glu Tyr Glu Lys Asn Arg Ser
            20                25                30

Lys Thr Asp Val Asp Lys Ile Glu Asn Gln Leu Leu Lys Glu Ile Lys
        35                40                45

Ser Leu Glu Asp Glu Leu Lys Asn Leu Lys Gly Leu Lys Asn Gln Ala
    50                55                60
```

Glu Asp Asn Pro Glu Leu Asp Lys Lys Ile Asn His Leu Glu Val Asp
65   70   75   80

Leu Asn Arg Leu Val Asn Glu Tyr Lys Asn Phe Gln Phe Gln Lys Asn
                85   90   95

His Met Val Asp Lys Val Ser Glu Leu Asp Asn Leu Thr Arg Phe Tyr
                100   105   110

Lys Asn Glu Leu Thr Arg Leu Gln Gln Glu Asn Ala Asp Phe Leu Asn
                115   120   125

Ser Lys Tyr Ala Asn Leu Ala Asn Phe Gln Ala Asn Tyr His Asn Lys
                130   135   140

Leu Asn Asp Phe His Arg Leu Ile Glu Asn Gln Asn Gln Thr Ile Asn
145   150   155   160

Arg Leu Asn Gln Lys Ile Asn Gly Asn Gln Asn Leu Ile Asp Asn Asn
                165   170   175

Val Ala Leu Leu Gln Asn Pro Asn Ile Thr Val Glu Lys Lys Asn Tyr
                180   185   190

Leu Leu Asn Val Ile Asp Gln Leu Tyr Asn Glu Leu Asp Gln Leu Glu
                195   200   205

Asn Gln Lys Arg Leu Leu Ser Ile Glu Tyr Glu Asn Thr Tyr Arg Glu
        210   215   220

Leu Val Ser Ala Asp Asn Glu Leu Gln Asn Val Tyr Glu Asn Ile Asp
225   230   235   240

Gln Asn Gln Ile Gln Phe Lys His Gln Tyr Gln Thr Tyr Arg Asp Glu
                245   250   255

Leu Ser Gln Leu Glu Arg Lys Ile Gln Leu Thr Lys Gln Glu Leu Val
                260   265   270

Asp Lys Glu Ser Ala Leu Arg Val Lys Ile Asp Asp Ala Asp Phe Tyr
        275   280   285

Ile Asn Ala Arg Leu Ala Glu Leu Asp Asp Val Ala Lys Gln Leu Ser
        290   295   300

Phe Gln Asp Gly Ile Thr Lys Gln Asn Ala Gln His Val Glu Asp Lys
305   310   315   320

Leu Val Ala Leu Asn Lys Glu Lys Asp Arg Leu Asn Thr Gln Lys Glu
                325   330   335

Ala Phe Phe Asn Leu Arg Gln Ser Ala Leu Ile Asp Ile Asn Lys Leu
                340   345   350

Gln Gln Glu Asn Glu Leu Phe Ala Lys His Leu Glu His Gln Gln Asn

Glu Phe Glu Gln Lys Gln Ser Asp Ser Leu Leu Lys Leu Glu Thr Glu
    370   375   380

Tyr Lys Ala Leu Gln His Lys Ile Asn Glu Phe Lys Asn Glu Ser Ala
385   390   395   400

Thr Lys Ser Glu Glu Leu Leu Asn Gln Glu Arg Glu Leu Phe Glu Lys
            405   410   415

Arg Arg Glu Ile Asp Thr Leu Leu Thr Gln Ala Ser Leu Glu Tyr Glu
            420   425   430

His Gln Arg Glu Ser Ser Gln Leu Leu Lys Asp Lys Gln Asn Glu Val
        435   440   445

Lys Gln His Phe Gln Asn Leu Glu Tyr Ala Lys Lys Glu Leu Asp Lys
    450   455   460

Glu Arg Asn Leu Leu Asp Gln Gln Lys Lys Val Asp Ser Glu Ala Ile
465   470   475   480

Phe Gln Leu Lys Glu Lys Val Ala Gln Glu Arg Lys Glu Leu Glu Glu
            485   490   495

Leu Tyr Leu Val Lys Lys Gln Lys Gln Asp Gln Lys Glu Asn Glu Leu
            500   505   510

Leu Phe Phe Glu Lys Gln Leu Lys Gln His Gln Ala Asp Phe Glu Asn
            515   520   525

Glu Leu Glu Ala Lys Gln Gln Glu Leu Phe Glu Ala Lys His Ala Leu
    530   535   540

Glu Arg Ser Phe Ile Lys Leu Glu Asp Lys Glu Lys Asp Leu Asn Thr
545   550   555   560

Lys Ala Gln Gln Ile Ala Asn Glu Phe Ser Gln Leu Lys Thr Asp Lys
            565   570   575

Ser Lys Ser Ala Asp Phe Glu Leu Met Leu Gln Asn Glu Tyr Glu Asn
            580   585   590

Leu Gln Gln Glu Lys Gln Lys Leu Phe Gln Glu Arg Thr Tyr Phe Glu
        595   600   605

Arg Asn Ala Ala Val Leu Ser Asn Arg Leu Gln Gln Lys Arg Glu Glu
    610   615   620

Leu Leu Gln Gln Lys Glu Thr Leu Asp Gln Leu Thr Lys Ser Phe Glu
625   630   635   640

Gln Glu Arg Leu Ile Asn Gln Arg Glu His Lys Glu Leu Val Ala Ser
            645   650   655

Val Glu Lys Gln Lys Glu Ile Leu Gly Lys Lys Leu Gln Asp Phe Ser
        660   665   670

Gln Thr Ser Leu Asn Ala Ser Lys Asn Leu Ala Glu Arg Glu Met Ala
        675   680   685

Ile Lys Phe Lys Glu Lys Glu Ile Glu Ala Thr Glu Lys Gln Leu Leu
    690   695   700

Asn Asp Val Asn Asn Ala Glu Val Ile Gln Ala Asp Leu Ala Gln Leu
705   710   715   720

Asn Gln Ser Leu Asn Gln Glu Arg Ser Glu Leu Gln Asn Ala Lys Gln
                725   730   735

Arg Ile Ala Asp Phe His Asn Asp Ser Leu Lys Lys Leu Asn Glu Tyr
            740   745   750

Glu Leu Ser Leu Gln Lys Arg Leu Gln Glu Leu Gln Thr Leu Glu Ala
            755   760   765

Asn Gln Lys Gln His Ser Tyr Gln Asn Gln Ala Tyr Phe Glu Gly Glu
    770   775   780

Leu Asp Lys Leu Asn Arg Glu Lys Gln Ala Phe Leu Asn Leu Arg Lys
785   790   795   800

Lys Gln Thr Met Glu Val Asp Ala Ile Lys Gln Arg Leu Ser Asp Lys
                805   810   815

His Gln Ala Leu Asn Met Gln Gln Ala Glu Leu Asp Arg Lys Thr His
            820   825   830

Glu Leu Asn Asn Ala Phe Leu Asn His Asp Ala Asp Gln Lys Ser Leu
            835   840   845

Gln Asp Gln Leu Ala Thr Val Lys Glu Thr Gln Lys Leu Ile Asp Leu
    850   855   860

Glu Arg Ser Ala Leu Leu Glu Lys Gln Arg Glu Phe Ala Glu Asn Val
865   870   875   880

Ala Gly Phe Lys Arg His Trp Ser Asn Lys Thr Ser Gln Leu Gln Lys
            885   890   895

Ile Tyr Glu Leu Thr Lys Lys Gln Glu Ser Glu Gln Thr Gln Lys Glu
            900   905   910

Thr Glu Leu Lys Ile Ala Phe Ser Asp Leu Gln Lys Asp Tyr Gln Val
        915   920   925

Phe Glu Leu Gln Lys Asp Gln Glu Phe Arg Gln Ile Glu Ala Lys Gln
    930   935   940

Arg Glu Leu Asp Lys Leu Ala Glu Lys Asn Asn Gln Val Lys Leu Glu
945   950   955   960

Leu Asp Asn Arg Phe Gln Ala Leu Gln Asn Gln Lys Gln Asp Thr Val
                965   970   975

Gln Ala Gln Leu Glu Leu Glu Arg Glu Gln His Gln Leu Asn Leu Glu
            980   985   990

Gln Thr Ala Phe Asn Gln Ala Asn Glu Ser Leu Leu Lys Gln Arg Glu
        995   1000   1005

Gln Leu Thr Lys Lys Ile Gln Ala Phe His Tyr Glu Leu Lys Lys
    1010   1015   1020

Arg Asn Gln Phe Leu Ala Leu Lys Gly Lys Arg Leu Phe Ala Lys
    1025   1030   1035

Glu Gln Asp Gln Gln Arg Lys Asp Gln Glu Ile Asn Trp Arg Phe
    1040   1045   1050

Lys Gln Phe Glu Lys Glu Tyr Thr Asp Phe Asp Glu Ala Lys Lys
    1055   1060   1065

Arg Glu Leu Glu Glu Leu Glu Lys Ile Arg Arg Ser Leu Ser Gln
    1070   1075   1080

Ser Asn Val Glu Leu Glu Arg Lys Arg Glu Lys Leu Ala Thr Asp
    1085   1090   1095

Phe Thr Asn Leu Asn Lys Val Gln His Asn Thr Gln Ile Asn Arg
    1100   1105   1110

Asp Gln Leu Asn Ser Gln Ile Arg Gln Phe Leu Leu Glu Arg Lys
    1115   1120   1125

Asn Phe Gln Arg Phe Ser Asn Glu Ala Asn Ala Lys Lys Ala Phe
    1130   1135   1140

Leu Ile Lys Arg Leu Arg Ser Phe Ala Ser Asn Leu Lys Leu Gln
    1145   1150   1155

Lys Glu Ala Leu Ala Ile Gln Lys Leu Glu Phe Asp Lys Arg Asp
    1160   1165   1170

Glu Gln Gln Lys Lys Glu Leu Gln Gln Ala Thr Leu Gln Leu Glu
    1175   1180   1185

Gln Phe Lys Phe Glu Lys Gln Asn Phe Asp Ile Glu Lys Gln Arg
    1190   1195   1200

Gln Leu Val Ala Ile Lys Thr Gln Cys Glu Lys Leu Ser Asp Glu
    1205   1210   1215

Lys Lys Ala Leu Asn Gln Lys Leu Val Glu Leu Lys Asn Leu Ser

```
              1220                    1225                    1230

Gln Thr  Tyr Leu Ala Asn Lys  Asn Lys Ala Glu Tyr  Ser Gln Gln
    1235                1240                1245

Gln Leu  Gln Gln Lys Tyr Thr  Asn Leu Leu Asp Leu  Lys Glu Asn
    1250                1255                1260

Leu Glu  Arg Thr Lys Asp Gln  Leu Asp Lys Lys His  Arg Ser Ile
    1265                1270                1275

Phe Ala  Arg Leu Thr Lys Phe  Ala Asn Asp Leu Arg  Phe Glu Lys
    1280                1285                1290

Lys Gln  Leu Leu Lys Ala Gln  Arg Ile Val Asp Asp  Lys Asn Arg
    1295                1300                1305

Leu Leu  Lys Glu Asn Glu Arg  Asn Leu His Phe Leu  Ser Asn Glu
    1310                1315                1320

Thr Glu  Arg Lys Arg Ala Val  Leu Glu Asp Gln Ile  Ser Tyr Phe
    1325                1330                1335

Glu Lys  Gln Arg Lys Gln Ala  Thr Asp Ala Ile Leu  Ala Ser His
    1340                1345                1350

Lys Glu  Val Lys Lys Lys Glu  Gly Glu Leu Gln Lys  Leu Leu Val
    1355                1360                1365

Glu Leu  Glu Thr Arg Lys Thr  Lys Leu Asn Asn Asp  Phe Ala Lys
    1370                1375                1380

Phe Ser  Arg Gln Arg Glu Glu  Phe Glu Asn Gln Arg  Leu Lys Leu
    1385                1390                1395

Leu Glu  Leu Gln Lys Thr Leu  Gln Thr Gln Thr Asn  Ser Asn Asn
    1400                1405                1410

Phe Lys  Thr Lys Ala Ile Gln  Glu Ile Glu Asn Ser  Tyr Lys Arg
    1415                1420                1425

Gly Met  Glu Glu Leu Asn Phe  Gln Lys Lys Glu Phe  Asp Lys Asn
    1430                1435                1440

Lys Ser  Arg Leu Tyr Glu Tyr  Phe Arg Lys Met Arg  Asp Glu Ile
    1445                1450                1455

Glu Arg  Lys Glu Ser Gln Val  Lys Leu Val Leu Lys  Glu Thr Gln
    1460                1465                1470

Arg Lys  Ala Asn Leu Leu Glu  Ala Gln Ala Asn Lys  Leu Asn Ile
    1475                1480                1485

Glu Lys  Asn Thr Ile Asp Phe  Lys Glu Lys Glu Leu  Lys Ala Phe
    1490                1495                1500
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Lys Asp Lys Val Asp Gln Asp Ile Asp Ser Thr Asn Lys Gln Arg
    1505   1510   1515

Lys Glu Leu Asn Glu Leu Leu Asn Glu Asn Lys Leu Leu Gln Gln
    1520   1525   1530

Ser Leu Ile Glu Arg Glu Arg Ala Ile Asn Ser Lys Asp Ser Leu
    1535   1540   1545

Leu Asn Lys Lys Ile Glu Thr Ile Lys Arg Gln Leu His Asp Lys
    1550   1555   1560

Glu Met Arg Val Leu Arg Leu Val Asp Arg Met Lys Leu Ala Glu
    1565   1570   1575

Gln Lys Tyr Gln Thr Glu Ile Asn Arg Leu Arg Thr Gln Thr Phe
    1580   1585   1590

Asp Ser Glu Lys Gln Asp Ile Lys Asn Phe Phe Pro Pro Leu Phe
    1595   1600   1605

Lys Ile Asn Gly Asn Asp Met Ala Phe Pro Tyr Leu Tyr Pro Trp
    1610   1615   1620

Leu Tyr Pro Gln Gln Lys Gln Asp Asp Asn Thr Leu Gln Ile Arg
    1625   1630   1635

Gln Leu Phe Glu Gln Gln Leu Gln Phe Met Gln Gln Arg Tyr Glu
    1640   1645   1650

Asn Glu Leu Asn Glu Leu Arg Arg Gln Arg Asn Leu Leu Glu Lys
    1655   1660   1665

Lys Leu Asp Gln Ile Gln Leu Glu Ser Gln Leu Asn Asn Lys Gln
    1670   1675   1680

Ser Glu Phe Ser Lys Val Glu Ser Met Met Glu Lys Leu Leu Glu
    1685   1690   1695

Lys Thr Glu Ser Arg Leu Asn Asp Phe Asp Gln Lys Ile Asn Tyr
    1700   1705   1710

Leu Thr Lys Lys Val Asn Gln His Asn Thr Tyr Gln Pro Ser Ser
    1715   1720   1725

Tyr Gln Pro Thr Pro Ser Tyr Gln Asp Ser Asp Lys Gln Gln Leu
    1730   1735   1740

Leu Phe Arg Ile Gln Glu Leu Glu Lys Gln Asn Leu Phe Gln Gln
    1745   1750   1755

Gln Phe Gln Pro Ala Pro Ala Val Val Gln Gln Pro Thr Ser Phe
    1760   1765   1770

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Ala Ala Pro Asn Ile Thr Lys Gln Gln Gln Ile Ala Gln Leu Asn
    1775   1780   1785

Ala Glu Ile Asn Asn Ile Lys Arg Leu Ile Ala Gln Lys Ala Ala
    1790   1795   1800

Ser Lys
    1805

<210> 74
<211> 74
<212> PRT
<213> M. genitalium

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|1045811

<400> 74

Met Gln Tyr Ser Ala Leu Ile Pro Leu Phe Ile Leu Leu Ile Ser Leu
1   5   10   15

Val Leu Phe Cys Phe Ser Phe Arg Lys Asn Gln Ser Glu Asn Gln Ile
            20   25   30

Val Lys Ile Leu Phe Phe Ala Tyr Cys Ile Asp Phe Leu Ala Leu Ile
        35   40   45

Leu Ala Val Met Leu Leu Thr Phe Leu Ser His Gly Leu Leu Ser Leu
    50   55   60

Ala Ile Leu Ile Pro Val Leu Val Phe Gln
65   70

<210> 75
<211> 1033
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> MG328 homolog

<220>
<221> misc_feature
<223> gi|1674046

<400> 75

Met Glu Phe Leu Glu Gln Glu Gly Gln Glu Val Leu Thr Lys Glu Ile
1   5   10   15

Lys Ala Gly Phe Cys Glu Ile Thr Pro Ser Ser Ile Thr Glu Gln Thr
                20   25   30

Thr Lys Pro Gln Leu Asp Glu Thr Gln Leu Val Asp Glu Tyr Val His
        35   40   45

Thr Lys Glu Leu Glu Thr Thr Pro Ile Pro Ile Ser Phe Ala Thr Lys
    50   55   60

Glu Val Leu Phe Glu Glu Val Phe Asn Thr Pro Ser Thr Gln Gln Val
65   70   75   80

Asp Glu Ser Val Leu Val Asn Glu Tyr Ile Glu Leu Thr Gln Gln Ile
            85   90   95

Lys Asn Ala Ser Glu Gln Val Ser Ser Asn His Thr His Lys Phe Ser
            100   105   110

Val Ala Thr Glu Pro Ala Ala Thr Lys Ala Val Ser Glu Thr Met Leu
        115   120   125

Leu Asp Asp Tyr Val Glu Met Val Glu Gln Asp Val Gln Ala Gln Thr
    130   135   140

Ala Leu Pro Gln Ala Ala Leu Asp Pro Thr Val Ser Leu Thr Phe Ser
145   150   155   160

Ser Pro Ile Asp Ser Asn Ala Ile Leu Val Tyr Pro Glu Met Lys Val
            165   170   175

Pro His Val Phe Asp Thr Val Ala Pro Thr Thr Thr Thr Val Pro Leu
            180   185   190

Asp Gln Thr Gln Leu Leu Asp Glu Leu Val Glu Val Pro Val Leu Thr
        195   200   205

His Thr Val Thr Pro Ala Pro Leu Gln Pro Lys Ala Ala Pro Thr Asn
    210   215   220

Phe Ala Leu Asp Gln Thr Gln Leu Val Asp Glu Leu Val Thr Val Pro
225   230   235   240

Leu Thr His Thr Leu Val Asn Glu Ser Ala Pro Val Thr Pro Val Val
            245   250   255

Val Thr Ser Pro Ala Ala Glu His Ser Phe Ser Ile Thr Thr Val Asp
        260   265   270

Lys Ala Asn Leu Thr Asn Ala Leu Ser Gln Thr Val Val Ile Lys Pro

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                 275                      280                      285

Ala Glu Asp Ser Ala His Gln Ser Ala Val Leu Asp Lys Glu Ile Ala
        290                  295                  300

Thr Lys Gln Ala Gln Leu Gln Gln Leu Gln Ala Gln Ile Glu Leu Arg
305                  310                  315                  320

Gln Ala Gln Leu Glu Thr Pro Pro Val Thr Tyr Met Gly Val Glu Glu
                325                  330                  335

Tyr Lys Leu Leu Pro Val Gln Asp Val Val Pro Val Gln Pro Thr Val
            340                  345                  350

Ser Phe Glu Met Thr Leu Leu Gln Glu Gln Leu Asp Lys Ala Leu Lys
        355                  360                  365

His Asn Ala Ala Leu Gln Ile Gln Leu Glu Glu Gln Leu Ala Lys Pro
        370                  375                  380

Leu Gln Tyr Asp Gln Ser Pro Val Leu Gln Glu Arg Ile Glu Leu Leu
385                  390                  395                  400

Gln Asn Gln Asn Thr Asn Leu Thr Gln Glu Leu Asn Glu Leu Gln Gln
                405                  410                  415

Lys Leu Phe Lys Ser Gln Asn Asn Ser Leu Leu Leu Ala Arg Leu Glu
            420                  425                  430

Glu Glu Asn Arg Thr Leu Lys Gln His Leu Gln Asn Asn Leu Pro Glu
        435                  440                  445

Ala Asn Gln Leu Asn Phe Val Leu Glu Lys Gln Leu Glu Gln Leu Gln
        450                  455                  460

Gln Asp Lys His Ser Leu Thr Leu Gln Ile Glu Gln Tyr Lys Phe Asp
465                  470                  475                  480

Ser Lys Lys His Gln Glu Gln Leu Ala Leu Ile Pro Ser Leu Arg Ser
                485                  490                  495

Glu Ile Asn Ser Leu Glu Thr Glu Val Ile Ser Leu Lys Gln Thr Asn
            500                  505                  510

Gln Arg Leu Ser Leu Ile Glu Arg Glu Asn Asn Phe Leu Lys Thr Glu
        515                  520                  525

Ile Lys Gln Leu Arg Glu Thr Lys Leu Asn Asp Glu Asn Thr Lys Tyr
        530                  535                  540

Arg Asn Leu Leu Lys Gln Tyr Glu Leu Met Arg Ala Asp Ser Asp Ala
545                  550                  555                  560

Lys Leu Lys Glu Leu Glu His Glu Gln His Leu Ala His Gln His His
                565                  570                  575

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Gln Glu Gln Leu Ala Gln Leu Gln Arg His Asn Glu Ala Leu Val Lys
        580                 585                 590

Glu Leu Asp Gln Val Lys Ala Thr Asn Phe Glu Leu Gly Leu Ala Ala
        595                 600                 605

Gln Gly Phe Glu Gln Gln Lys Val Val Leu Glu Gln Lys Asn Ser Ser
    610                 615                 620

Leu Leu Ala Ser Leu Gln Ala Ala Glu Glu Asn Val Gln Ala Leu Gly
625                 630                 635                 640

Ile Thr Asn Ser Glu Leu Gln Asn Gln Leu Asn Val Leu Glu Phe Thr
            645                 650                 655

His Lys Glu Lys Thr Ala Phe Asp Ser Lys Thr Leu Thr Leu Thr Lys
        660                 665                 670

Gln Gln Leu Glu Gln Thr Gln Phe Asp Leu Ser Leu Thr Gln Glu Gln
        675                 680                 685

Leu Ala Thr Phe Lys Gln Gln Asn Gln Ser Leu Thr Asp Lys Leu Met
    690                 695                 700

Ala Ser Glu Thr Gln Leu Asn His Leu Gln Gln Ser Asp Glu Asn Leu
705                 710                 715                 720

Thr Gln Leu Gln Thr Gln His Glu Leu Leu Gln Glu Ser Tyr Asn Lys
            725                 730                 735

Leu Gln Asp Glu Ala Asn His Thr Gln Gln Gln Phe His Gln Ala Gln
            740                 745                 750

Asn Glu Leu Asp Ala Ala His Gln Gln Leu Ala Leu Phe Lys Gln Asn
        755                 760                 765

Asn Glu Glu Leu Thr Asp Lys Cys Ser Asn Ile Gln Asn Glu Leu His
    770                 775                 780

Asp Leu Asn Arg Val Lys Thr Asn Trp Glu Asn Leu Asn Thr Glu His
785                 790                 795                 800

Asn Leu Leu Gln Asp Lys Tyr Ala Gln Gln Lys Glu Gln Met Gln His
            805                 810                 815

Glu His Ser Asn Leu Ala Gln Ile Gln Ala Glu His Glu Leu Leu Gln
        820                 825                 830

Glu Ser Tyr Asn Lys Val Lys Ala Glu Leu Asn Glu Ile Gln Ile Thr
        835                 840                 845

Asn Leu Asn Glu Ala Asn Ala Gln Tyr Gln Asp Leu Leu Ser Ala Tyr
    850                 855                 860
```

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Glu Leu Leu Gln Ser Asn His Asn Lys Leu Lys Gln Glu Leu Gln Val
865   870   875   880

Leu Asn Gln Val Asn Leu Glu Lys Gln Gln Leu Ala Gln Lys Leu His
             885   890   895

Asn Thr His Gln Ser Leu Ser Gln Thr His Ala Glu Leu Thr Gln Leu
         900   905   910

Gln Ala Ala Tyr Asn Asn Leu Gln Ala Thr Pro Pro Val Ser Asp Glu
         915   920   925

Leu Leu Glu Gln Phe Asn Gln Val Gln Leu Glu Lys Gln Arg Leu Leu
     930   935   940

Gln Gln Asn Leu Ala Leu Val His Glu Leu Gln Tyr Phe Asn Glu Leu
945   950   955   960

Asn Ser Ser Gln Thr His Glu Ile Lys Thr Lys Gln Asp Glu Thr Val
             965   970   975

Lys Glu Val Ile Ile Val Glu Lys Glu Ile Pro Val Pro Pro Glu Lys
             980   985   990

Lys Pro Arg Leu Lys Lys Arg Asp Ile Val Ile Glu Asn Lys Glu Asp
         995   1000   1005

Ala Leu Gly Lys Leu Ser Lys Lys Glu Arg Ile Gln Ala Tyr Ala
     1010   1015   1020

Glu Arg Leu Ala Lys Ile Asn Gly Lys Gln
     1025   1030

<210> 76
<211> 22
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> A05_orf139 Protein

<220>
<221> misc_feature
<223> gi|1673719

<400> 76

Met Arg Trp Cys Arg Gly Ser Pro Tyr His Trp Asn Leu Asp Arg Arg
1   5   10   15

Asn Pro Asp Phe Pro Ala
             20

<210> 77
<211> 103
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> B01_orf103b Protein

<220>
<221> misc_feature
<223> gi|1673772

<400> 77

Met Ser Ser Val Phe Ser Lys Pro Asn Leu Lys Arg Pro Ser Phe Asp
1   5   10   15

Val Lys Asn Leu Thr Lys Pro Ser Arg Leu Leu Ser Ala Thr Leu Arg
            20   25   30

Ser Ser Cys Ala Phe Leu Ser Ser Ala Ser Phe Phe Ala Cys Ser Leu
            35   40   45

Cys Phe Phe Cys Cys Ser Ser Ile Ser Phe Cys Ser Leu Ala Ser Ser
    50   55   60

Ser Ala Arg Leu Arg Tyr Ser Ser Ser His Ser Phe Phe Cys Trp Val
65   70   75   80

Leu Phe Ser Arg Ser Gly Leu Ala Tyr Ser Ser Ser Asn Leu Ser Ser
            85   90   95

Lys Ser Ser Arg Leu Arg Ser
            100

<210> 78
<211> 112
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> VXpSPT7_orf112 Protein

<220>
<221> misc_feature
<223> gi|1674374

<400> 78

```
Met Ile Asp Arg Phe Phe Trp Ser Ile Leu Ser Phe Leu Leu Thr Asn
1               5                   10                  15

Leu Val Phe Leu Phe Val Ala Phe Leu Ile Leu Ile Ile Tyr Leu Ile
            20                  25                  30

Ser Glu Ile Thr Gln Gln Phe Ala Phe Ala Phe Ile Ala Thr Ile Val
            35                  40                  45

Phe Ile Ile Phe Tyr Asn Ile Leu Phe Leu Ser Tyr Leu Leu Thr Met
        50                  55                  60

Tyr Ile Lys Gly Leu Lys Gln Ile Glu Gln Lys Ser Arg Tyr Leu Leu
65                  70                  75                  80

Leu Val Leu Asp Val Lys Ala Asp Glu Leu Leu Pro Phe Ser Phe Leu
                85                  90                  95

Gly Ser Leu Arg Lys Ser His Met Leu Glu Glu Met Leu Leu Glu Gln
                100                 105                 110
```

<210> 79
<211> 147
<212> PRT
<213> M. pneumoniae

<220>
<221> misc_feature
<223> B01_orf147 Protein

<220>
<221> misc_feature
<223> gi|1673775

<400> 79

```
Met Pro Ser Ser Ala Phe Lys Ile Asn Leu Ser Val Ser Pro Trp Phe
1               5                   10                  15

Phe Cys Ser Thr Trp Ser Ser Leu Ile Cys Trp Pro Trp Thr Ile Thr
            20                  25                  30

Thr Ser Val Ser Arg Ser Thr Leu Ser Ser Thr Thr Trp Ile Leu Trp
            35                  40                  45

Thr Trp Leu Phe Asn Ser Val Ser Ile Phe Val Ser Arg Trp Ser Phe
        50                  55                  60

Asp Phe Leu Tyr Ser Leu Asn Ser Leu Arg Val Thr Tyr Ser Val Phe
65                  70                  75                  80

Thr Gly Ile Thr Gly Leu Leu Ser Leu Asn Cys Leu Leu Lys Leu Pro
```

Glu Asn Ser Thr Leu Leu Leu Ser Leu Ser Ile Ile Tyr Gln Pro Glu
            100   105   110

Lys Val Pro Phe Trp Ser Phe Ser Pro Cys His Glu Ile Leu Phe Arg
            115   120   125

Tyr Lys Thr Glu Phe Ser Leu Ser Leu Ser His Thr Ser Phe Leu Phe
    130   135   140

Ser Glu Ile
145

<210>   80
<211>   217
<212>   PRT
<213>   M. tuberculosis

<220>
<221>   misc_feature
<223>   hypothetical protein Rv3611

<220>
<221>   misc_feature
<223>   gi|2113965

<400>   80

Met Ala Ile Ala Asn Pro Ala Glu Pro Gly Ala Ala Gly Arg His His
1   5   10   15

Gln Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp Arg Gln Cys Gly Pro
            20   25   30

Gln Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr Pro Glu Pro Gly Ala
            35   40   45

Ala Gly Arg His His Gln Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp
    50   55   60

Arg Gln Cys Gly Pro Gln Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr
65   70   ‘   75   80

Pro Glu Pro Gly Ala Ala Gly Arg His His Gln Pro Arg Gly Asp Arg
                85   90   95

Lys Pro Arg Ala Trp Arg Gln Cys Gly Pro Gln Asn Gly Pro Arg Arg
            100   105   .   110

Ser Gln Ala Ile Thr Pro Glu Pro Gly Ala Ala Gly Arg His His Gln
    115   120   125

```
Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp Arg Gln Cys Gly Pro Gln
    130             135         140

Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr Pro Glu Pro Gly Ala Ala
145             150             155                 160

Gly Arg His His Gln Pro Arg Gly Asp Arg Lys Pro Arg Ala Trp Arg
                165             170             175

Gln Cys Gly Pro Gln Asn Gly Pro Arg Arg Ser Gln Ala Ile Thr Pro
            180             185             190

Glu Pro Gly Ala Ala Gly Arg His Trp Leu Asp Gln Arg Pro Val Val
        195             200             205

Pro Asp Gly Val Gly Lys Ser Asp Ser
    210             215
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<210> 81
<211> 27
<212> PRT
<213> M. tuberculosis

<220>
<221> misc_feature
<223> hypothetical protein Rv1572c

<220>
<221> misc_feature
<223> gi|2117265

<400> 81

```
His Gly Gln Pro Arg Thr Asn Thr Phe His His His Glu Lys Leu Leu
1               5               10              15

Arg His Asn Asp Glu Asp Asn His Asp Asp Pro
            20              25
```

<210> 82
<211> 73
<212> PRT
<213> M. tuberculosis

<220>
<221> misc_feature
<223> hypothetical protein Rv0378

<220>
<221> misc_feature
<223> gi|2909499

<400> 82

Met Ser Gly Arg Trp Glu Ala Gly Asn Ala Asp Gly Asn Gly Gly Ser
1   5   10   15

Ala Gly Leu Ile Gly Ser Gly Gly Ala Gly Gly Asp Gly Gly Ser Gly
            20   25   30

Gly Ala Thr Gly Ala Gly Gly Glu Gly Gly Asp Ala Gly Ala Ser Gly
        35   40   45

Ser Ile Asn Gly Asn Ala Gly Asp Pro Gly Asn Ser Gly Glu Arg Gly
    50   55   60

Ala Val Gly Lys Pro Gly Ala Pro Gly
65   70

<210>   83
<211>   47
<212>   PRT
<213>   N. meningitis MC58

<220>
<221>   misc_feature
<223>   hypothetical protein

<220>
<221>   misc_feature
<223>   gi|7225315

<400>   83

Met Glu Trp Ala Glu Asn Glu Thr Val Lys Leu Ala Gln Lys Trp Glu
1   5   10   15

Gln Glu Gln Lys Lys Gln Gln Ile Gln Gln Lys Lys Glu Thr Glu Lys
            20   25   30

Ser Pro Lys His Lys Ala Ser Arg Asp Asp Trp Glu Met Glu Arg
        35   40   45

<210>   84
<211>   107
<212>   PRT
<213>   N. meningitis MC58

<220>
<221>   misc_feature
<223>   hypothetical protein

<220>

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Met Lys Lys Leu Leu Ile Ala Ala Met Met Ala Ala Ala Leu Ala Ala
1   5   10   15

Cys Ser Gln Glu Ala Lys Gln Glu Val Lys Glu Ala Val Gln Ala Val
            20   25   30

Glu Ser Asp Val Lys Asp Thr Ala Ala Ser Ala Ala Glu Ser Ala Ala
            35   40   45

Ser Ala Val Glu Glu Ala Lys Asp Gln Val Lys Asp Ala Ala Ala Asp
        50   55   60

Ala Lys Ala Ser Ala Glu Glu Ala Val Thr Glu Ala Lys Glu Ala Val
65   70   75   80

Thr Glu Ala Ala Lys Asp Thr Leu Asn Lys Ala Ala Asp Ala Thr Gln
                85   90   95

Glu Ala Ala Asp Lys Met Lys Asp Ala Ala Lys
            100   105

Met Lys Lys Ser Leu Phe Ala Ala Ala Leu Leu Ser Leu Val Leu Ala
1   5   10   15

Ala Cys Gly Gly Glu Lys Ala Ala Glu Ala Pro Ala Ala Glu Ala Pro
            20   25   30

Ala Ala Glu Ala Pro Ala Thr Glu Ala Pro Ala Ala Glu Ala Pro Ala
            35   40   45

Ala Glu Ala Pro Ala Ala Glu Ala Pro Ala Ala Glu Ala Ala Ala Thr
        50   55   60

Glu Ala Pro Ala Ala Glu Ala Ala Ala Thr Glu Ala Pro Ala Ala Glu
65   70   75   80

Ala Ala Ala Thr Glu Ala Pro Ala Ala Glu Ala Pro Ala Ala Glu Ala
                85   90   95

Ala Lys

<210> 86
<211> 34
<212> PRT
<213> N. meningitis MC58

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|7227030

<400> 86

Met Pro Trp Lys Ile Ser Thr Thr Thr Asn Leu Thr Pro Val Pro Ser
1   5   10   15

Ala Asn Leu Ser Ala Leu Pro Thr Thr Arg Cys Thr Thr Pro Pro Pro
                20   25   30

Thr Pro

<210> 87
<211> 114
<212> PRT
<213> N. meningitis MC58

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|7227104

<400> 87

Met Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro
1   5   10   15

Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly
            20   25   30

Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser
            35   40   45

Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro
        50   55   60

Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly
65   70   75   80

Ile Pro Glu Ser Ser Gly Ile Pro Glu Ser Ser Gly Ile Pro Glu Pro
                85   90   95

Ser Phe Pro Arg Arg Arg Glu Ser Arg Pro Val Gly Ala Glu Thr Tyr
            100   105   110

Arg Val

<210>   88
<211>   120
<212>   PRT
<213>   N. meningitis MC58

<220>
<221>   misc_feature
<223>   hypothetical protein

<220>
<221>   misc_feature
<223>   gi|7226645

<400>   88

Met Ile Ala Lys Ser Leu Phe Phe Arg Cys Gln Lys Ile Tyr Phe Ile
1   5   10   15

Tyr Phe Ile Leu Phe Ile Cys Leu Tyr Leu Asn Ile Ser Tyr Asp Gly
            20   25   30

Glu Ile Phe Ile Tyr Phe Ile Ile Asn Phe Thr His Leu Leu Ile Cys
        35   40   45

His Gly Ile Leu Leu Val Phe Cys Arg Ile Phe Pro Tyr Glu Asn Ile
        50   55   60

Pro Phe Thr Ile Phe Leu Asn Phe Ile Ser Leu Phe Leu Ile Phe Leu
65   70   75   80

Pro Leu Ile Phe Thr Ile Arg Glu Leu Ile Asp Ser Tyr Tyr Ile Glu

Ser Ile Ile Asn Leu Phe Leu Ile Leu Ile Pro His Val Ile Phe Leu
          100   105   110

Ile Tyr Leu Lys Gly Lys Gln Ile
        115   120

<210> 89
<211> 78
<212> PRT
<213> Pseudomonas aeruginosa

<220>
<221> misc_feature
<223> AE004587_5 hypothetical protein

<220>
<221> misc_feature
<223> gi|9947556

<400> 89

Met Lys Lys Thr Val Thr Leu Ala Leu Leu Leu Ala Ala Ser Leu Gly
1   5   10   15

Leu Ala Ala Cys Asp Lys Lys Glu Glu Asp Lys Ala Ala Ala Pro Ala
            20   25   30

Ala Pro Ala Thr Glu Thr Gln Pro Ser Ala Pro Ala Thr Pro Pro Ala
        35   40   45

Glu Pro Ser Ala Pro Ala Pro Ser Ser Asp Thr Pro Ala Thr Pro Gln
    50   55   60

Thr Pro Ala Pro Thr Pro Glu Gln Pro Gln Gln Asn Gln Gln
65   70   75

<210> 90
<211> 52
<212> PRT
<213> Pseudomonas aeruginosa

<220>
<221> misc_feature
<223> AE004746_3 hypothetical protein

<220>
<221> misc_feature
<223> gi|9949353

<400> 90

Met Ser Leu Gly Thr Ile Leu Leu Ile Ile Leu Ile Leu Leu Leu Ile
1   5   10   15

Gly Gly Leu Pro Val Phe Pro His Ser Arg Asn Trp Gly Tyr Gly Pro
            20   25   30

Ser Gly Ile Ile Gly Ala Leu Leu Val Val Leu Leu Val Leu Leu Leu
        35   40   45

Leu Gly Met Ile
    50

<210> 91
<211> 126
<212> PRT
<213> Pseudomonas aeruginosa

<220>
<221> misc_feature
<223> AE004708_10 hypothetical protein

<220>
<221> misc_feature
<223> gi|9948900

<400> 91

Met Leu Lys Leu Phe Ala Thr Gly Leu Ala Ala Ser Phe Leu Leu Leu
1   5   10   15

Pro Pro Ala Gln Ala Ala Pro Pro Ala Pro Tyr Gly Val Gln Pro His
            20   25   30

Gln Gln Ala Val Gln Arg Ala Gly Glu Gln Arg Gln Arg Gln Leu Gln
        35   40   45

Glu Gln Arg Gln Arg Phe Asp Glu Gln Arg Leu Gln Leu Gln Gln Asp
    50   55   60

Gln Leu Gln Arg Gln Gln Gln Asn Leu Gln Arg Gln Arg Gln Gln Arg
65   70   75   80

Gln Met Gln Asp Asn Leu Ile Arg Gln Gln Gln Leu Asp Gln Gln Arg
            85   90   95

Trp Arg Leu Glu Gln Asp Gln Arg Arg Leu Asp Ser Glu Arg Arg Gln
            100   105   110

Leu Glu Asn Arg Arg Arg Gln Ser Gln Ser Pro Ala Ile Arg
        115   120   125

<210> 92
<211> 101
<212> PRT
<213> Pseudomonas aeruginosa

<220>
<221> misc_feature
<223> AE004643_2 hypothetical protein

<220>
<221> misc_feature
<223> gi|9948180

<400> 92

Met Ser Ala Asp Glu Lys Arg Ile Arg Glu Phe Ala Tyr Gln Ile Trp
1   5   10   15

Glu Ser Glu Gly Cys Pro Asp Gly Gln Ala Glu Arg His Trp Ala Met
            20   25   30

Ala Arg Gln Leu Ala Glu Ala Glu Ala Ala Ala Ala Pro Lys Lys
        35   40   45

Thr Arg Gly Arg Ala Lys Ala Ala Lys Glu Thr Pro Ala Leu Leu Gln
    50   55   60

Ala Pro Ala Ala Lys Pro Arg Lys Pro Arg Ala Ala Ser Pro Ala Arg
65   70   75   80

Pro Ala Ser Glu Lys Pro Ala Ala Ala Lys Pro Arg Ser Arg Arg Lys
            85   90   95

Pro Glu Ala Gly Glu
            100

<210> 93
<211> 521
<212> PRT
<213> R. prowazekii

<220>
<221> misc_feature
<223> unknown

<220>
<221> misc_feature
<223> gi|3860652

<400> 93

Met Lys Lys Glu Ile Leu Ser Lys Gln Gly Asn Ile Leu Glu Gln Leu
1   5   10   15

Lys Phe Ile Asn Ala Asn Thr Glu Ile Leu Thr Glu His Ser Lys Ala
            20   25   30

Ile Leu Lys Asp Lys Leu Lys Glu Leu Ser Lys Gln Leu Asp Glu Ile
        35   40   45

Ser Ser Asn Lys Leu Val Gly Phe Ile Leu Asp Glu Asn Lys Ile Asn
    50   55   60

Thr Asn Phe Lys Asn Val Pro Phe Ser Glu Lys Lys Val Arg Glu Gln
65   70   75   80

Val Asn Asn Leu Asn Asn Lys Ile Leu Glu Lys Ile Phe Leu Lys Asp
            85   90   95

Asp Gly Thr Ile Thr Glu Gln Asp Leu Thr Lys Ile Leu Gln Lys His
            100   105   110

Lys Glu Thr Val Leu Ile Lys Asn Leu Thr Lys Ala Ile Val Tyr Ile
        115   120   125

Asp Gly Asn Lys Asn Asn Glu Thr Val Asn Lys Thr Leu Glu Lys Cys
    130   135   140

Leu Glu Glu Thr Thr Pro Glu Gln Gln Gly Met Ile Leu Asp Val Leu
145   150   155   160

Thr Asn Asn Thr Arg Ile Arg Lys Ala Leu Ile Thr Lys Ile Glu Arg
            165   170   175

Glu Gln Arg Gln Glu His Asn Gln Lys Leu Asn Lys Asn Ile Ala Gly
        180   185   190

Asp Thr Phe Val Asp Ala Leu Lys Lys Ala Leu Val His Arg Thr Ser
    195   200   205

Asn Pro Glu Thr Ile Gln Lys Ser Leu Glu Arg Arg Lys Lys Glu Thr
    210   215   220

Pro Lys Asn Leu Asn Val Trp Asp Arg Ile Ser Gln Asn Ile Pro Asn
225   230   235   240

Leu Asn Asn Gln Asn Asp Asn Gln Asn Gly Gln Asp Glu Asn Asn Lys
            245   250   255

Glu Trp Glu Glu Ser Asn Gln Asn Ala Asp Tyr Leu Asn Asn Thr Asn
        260   265   270

Ile Tyr Arg Ile Thr Lys Ala Lys Gln Asp Leu Glu Lys Ala Val Lys
        275   280   285

Glu Thr Ile Asn Lys Phe Ser Ala Met Ser Thr Leu Ile Lys Asp Asn

Thr Ile Lys Asn Thr Met Ala Tyr Gln Lys Tyr Leu Lys Gly Ala Glu
305   310   315   320

Asp Gln Leu Ala Leu Ala Lys Glu Lys Gly Lys Glu Leu Ile Glu Asn
                   325   330   335

Ser Val Gln Thr Phe Lys Ile Ile Pro Lys Lys Tyr Gln Asp Asp Met
                   340   345   350

Asn Glu Asn Trp Gln Asn Tyr Leu Ser Pro Glu Glu Ile Ile Glu Leu
                   355   360   365

Thr Ala Leu Asn Glu His Thr Asn Thr Leu Thr Ser Asn Lys Asn Lys
                   370   375   380

Ser Gly Tyr Phe Thr Ser Thr Ala Glu Ala Leu Gln Cys Lys Thr Lys
385   390   395   400

Gln Gln Glu Tyr Tyr Thr Leu Leu Ser Lys Leu Lys Lys Ile Gly Ile
                   405   410   415

Glu Lys Gln Gln Lys Lys Leu Val Lys Asp Tyr Val Asp Glu Met Ile
                   420   425   430

Thr Asn Ala Lys Gln Ala Val Lys Lys Ile Glu Arg Thr Leu Glu Lys
                   435   440   445

Val Asn Gln Lys Lys Glu Asn Lys Tyr Glu Phe Ser Glu Ser Ser Ala
                   450   455   460

Leu Ile Ser Lys Glu Ile Leu Asp Ala Gln Ala Arg Leu Glu Asn Ala
465   470   475   480

Lys Gln Lys Ile Glu Phe Ile Lys Leu Lys Gln Ile Ile Ser Asp Lys
                   485   490   495

Arg Gln Val Asn Ser Ser Asp Glu Asp Ser Asp Asp Asp Ser Lys Lys
                   500   505   510

Lys Cys Asn Gln Thr Lys Ser Arg Thr
                   515   520

<210>   94
<211>   143
<212>   PRT
<213>   R. prowazekii

<220>
<221>   misc_feature
<223>   unknown

<220>

<221> misc_feature
<223> gi|3860651

<400> 94

Met Lys Ile Gln Met Met Ile Leu Lys Lys Asn Ala Ile Lys Leu Lys
1   5   10   15

Val Glu Leu Glu Asn Ala Gln Lys Asp Ile Asn Gln Ala Lys Lys Asn
            20   25   30

Leu Glu Asn Ala Glu Ala Lys Asn Glu Ala Leu Gln Arg Gln Ile Ile
            35   40   45

Leu Asn His Asn Gln Asn Glu Val Asn Ser His Thr Thr Lys Asn Gln
        50   55   60

Glu Lys Phe Lys Thr Asp Asn Val Thr Glu Glu Tyr Leu Glu Asp Met
65   70   75   80

Ala Leu Met Phe Lys Asn Ser Glu Asp Thr Ala Glu Gln Lys Glu Glu
                85   90   95

Val Asn Cys Gln His His Glu Glu Gln Asn Arg Gln Lys Gln Glu His
            100   105   110

Ile Asn Thr Glu Glu Glu Ala Val His Lys Glu Lys Ile Ile His Ile
            115   120   125

Thr Glu Glu Thr Glu Thr Glu Ala Phe Lys Lys Glu Ile Asp Leu
        130   135   140

<210> 95
<211> 369
<212> PRT
<213> T. pallidum

<220>
<221> misc_feature
<223> conserved hypothetical protein

<220>
<221> misc_feature
<223> gi|3322751

<400> 95

Met Cys Gln Lys Ser Ser Pro Cys Thr Tyr Ala Arg Val Arg Ser Leu
1   5   10   15

Pro Ser Val Arg Leu Phe Ser Phe Leu Ala Leu Ala Phe Ala Ser Phe
            20   25   30

Leu Arg Ala Glu Asp Ala Phe Asp His Phe Arg Glu Gly Glu Arg Leu
        35   40   45

Leu Ser Leu Gln Gln Ala Gln Gln Ala Ile Gly Pro Leu His Lys Ala
        50   55   60

Ala Gln Gln Lys Pro Ala His Pro Lys Ala Ala Leu Tyr Leu Gly Met
65   70   75   80

Ala Tyr Leu Gln Thr Gly Arg Tyr Thr Gln Ala Ile Gln Trp Leu Gln
                85   90   95

Asn Pro Pro Val His Ser Gln Glu Tyr Ala His Leu Tyr Ala Tyr Asn
            100   105   110

Leu Gly Asn Val Tyr Phe Val Gln His Arg Tyr Glu Glu Ala Gln His
        115   120   125

Ala Tyr Glu Gln Ala Leu Ala Leu Lys His Asp Tyr Pro Pro Ala Leu
        130   135   140

Leu Asn Arg Ala Asn Thr Ala Met Lys Arg Gln Ala Tyr Ala His Ala
145   150   155   160

Leu Ala Asp Tyr Lys Lys Tyr Val Ser Gln Asn Pro Thr Ala Ser Gln
                165   170   175

His Tyr Glu Val Gln Arg Met Ile Ala Ala Leu Glu Gln Trp Leu Gln
            180   185   190

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
        195   200   205

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
        210   215   220

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
225   230   235   240

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
                245   250   255

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
            260   265   270

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
        275   280   285

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
        290   295   300

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Glu Ala Arg
305   310   315   320

Arg Lys Glu Ala Glu Glu Ala Arg Arg Lys Glu Ala Glu Phe Glu Ala
            325   330   335

Leu Lys Arg Ala Leu Arg Leu Lys Gln Ala Glu Asp Ala Arg Thr Leu
            340   345   350

Ser Thr Gly Ser Glu Asp Thr Val Pro Tyr Gln Glu Glu His Asn Leu
            355   360   365

Glu

<210> 96
<211> 41
<212> PRT
<213> T. pallidum

<220>
<221> misc_feature
<223> predicted coding region TP0266

<220>
<221> misc_feature
<223> gi|3322546

<400> 96

Met Val Arg Val Gln Arg Arg Val Leu Lys Asn Phe Met Arg Val Val
1   5   10   15

Gly Val Asp Lys Gly Tyr Arg Leu Trp Val Glu Trp Leu Ser Cys Val
            20   25   30

Cys Cys Gly Tyr Val Val Arg Ala Glu
            35   40

<210> 97
<211> 38
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9654409

<400> 97

```
Met Ser Lys Gln Glu Met Lys Lys Pro Gln Leu Ser Leu Lys Glu Lys
1                   5                   10                  15

Arg Lys Leu Lys Gln Glu Lys Ala Gln Glu Ser Ser Val Ile Lys Pro
            20                  25                  30

Arg Lys Ser Lys Gly Arg
        35
```

<210> 98
<211> 85
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9654544

<400> 98

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Met Phe Leu Ser Phe Ile Cys Phe Tyr Ile Phe Lys Asn Gly Ser Tyr
1                   5                   10                  15

Phe Ser Phe Ile Cys Leu Val Gly Cys Phe Gln Phe Phe Asp Phe Phe
            20                  25                  30

Val Val Val Phe Ile Gly Phe Leu Phe Leu Phe Cys Ser Phe Gly Leu
        35                  40                  45

Val Asp Phe Ser Phe Phe Tyr Phe Val Leu Ile Val Phe His Leu Phe
    50              55                  60

Gly Val Asp Leu Leu Ser Trp Phe Gly Trp Trp Gln Val Phe Leu Phe
65                  70                  75                  80

Cys Asn Phe Ile Glu
                85
```

<210> 99
<211> 43
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>

<221> misc_feature
<223> gi|9654912

<400> 99

Met Leu Asn His Leu Leu Val Arg Leu Thr Ile Gly Cys Leu Leu Val
1   5   10   15

Leu Gly Ile Lys Leu Ser Ala Leu Tyr Phe Leu Pro Met Val Leu Leu
            20   25   30

Leu Asn Thr His His Lys Glu Phe Phe Gly Trp
        35   40

<210> 100
<211> 31
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9656707

<400> 100

Met Pro Arg His Pro Phe Val Phe Val Val Ile Pro Lys Pro Pro Phe
1   5   10   15

Leu Ala Val Val Ile Val Leu Arg Phe Val Val Thr Arg Tyr Leu
            20   25   30

<210> 101
<211> 88
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9657609

<400> 101

Met Leu Ser Leu Ala Val Pro Leu Leu Phe Met Ser Leu Leu Gly Phe
1   5   10   15

Lys Leu Lys Leu Pro Tyr Gly Leu Leu Met Gly Leu Ile Ile Leu Thr
            20   25   30

Leu Leu Leu Gly Trp Leu Gly Asn Val Ser Leu Leu Pro Val Leu Val
        35   40   45

Val Leu Phe Phe Met Ser Pro Leu Leu Leu Ala Thr Lys Arg Ala Pro
    50   55   60

Trp Gln Ser Ile Leu Phe Gly Val Gly Cys Leu Leu Pro Gln Leu Val
65   70   75   80

Gln Phe Val Met Leu Asn Gln Arg
                85

<210>   102
<211>   33
<212>   PRT
<213>   Vibrio cholerae

<220>
<221>   misc_feature
<223>   hypothetical protein

<220>
<221>   misc_feature
<223>   gi|9657724

<400>   102

Met Arg Arg Leu Leu Cys Leu Ser Phe Asn Thr Leu His Leu Asn Gln
1   5   10   15

Ile Asn Asp Asn Gln Leu Lys Ser Leu Thr Lys Leu Arg Ile Ile Leu
            20   25   30

Asn

<210>   103
<211>   34
<212>   PRT
<213>   Vibrio cholerae

<220>
<221>   misc_feature
<223>   hypothetical protein

<220>

<221> misc_feature
<223> gi|9657931

<400> 103

Met Gly Lys Ser Met Pro Ile Gln Leu Leu Leu Leu Ser Ile Pro Phe
1   5   10   15

Leu Leu Asp Ala Ala Thr Pro Ser Arg Leu Gly Ile Lys Ile Leu Ile
            20   25   30

Leu Lys

<210> 104
<211> 36
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9658035

<400> 104

Met Gly Tyr Pro Ser Met Ala Ala Ala Leu His Ala Ala Ala Leu Asn
1   5   10   15

Ile Ala Leu Asn Ile Gln Leu Asn Ile Ser Met Arg Ala Met Leu Leu
            20   25   30

Ala Phe Leu Glu
        35

<210> 105
<211> 38
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9658254

<400> 105

Met Leu Ile Arg Glu Leu Ala Leu Ala Ala Tyr Gln Phe His Arg Tyr
1   5   10   15

Phe Lys Ile His Phe Met Phe Gln Phe Lys Val Phe Leu Phe Leu Ala
            20   25   30

Lys Gly Phe Phe Ser Phe
        35

<210> 106
<211> 35
<212> PRT
<213> Vibrio cholerae

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|9656580

<400> 106

Met Lys Leu Asn Asp Leu Asn Lys Lys Pro Leu Val Ile Lys Lys Thr
1   5   10   15

Ala Leu Ser Phe Gln Lys Leu Lys Lys Leu Gln Gln Pro Val Lys Lys
            20   25   30

Phe His Phe
        35

<210> 107
<211> 665
<212> PRT
<213> Plasmodium falciparum

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|3845248

<400> 107

Met Gln Tyr Phe Phe Leu Val Phe Leu Ala Val Leu Ala Lys Gly Phe
1   5   10   15

Leu Arg Asn Lys Glu His Ala Asn Leu Ile Asn Ser Tyr Asn Asp Ile
            20   25   30

Val Glu Asp Ile Asn Ile Lys Lys Glu Glu Lys Ser Ser Ser Glu Pro
        35   40   45

Pro Phe Ile Pro Ile Lys Asn Lys Ile Asp Asn Val His Thr Lys Asn
    50   55   60

Asn Asn Gln Tyr Asn Leu His Asn Asn Lys Ser Asn Lys Thr His Leu
65   70   75   80

Thr Tyr Gly Thr His Thr Ser Phe Leu Gln Asn Cys Thr Ile Asn Asp
                85   90   95

Cys Val Asp Val Asp Asn Lys Asp Ser Glu Ile Asn Asn Ile Thr Lys
            100   105   110

Glu Lys Asp Asp Asn Asn Asn Asn Asn Gly Thr Lys Gln Ile Glu Glu
        115   120   125

Lys Asn Lys Ile Asn Lys Ser Asp Leu His Arg Gln Asn Glu Leu Asn
        130   135   140

Leu Gln Ser Gly Lys Asn Glu Gln Asp Ile Asn Lys Asn Glu Lys Gly
145   150   155   160

Lys Gln Asp Ile Ser Asn Ser Asn Ala Glu Asn Lys Lys Asp Val Lys
                165   170   175

Glu Gly Val Lys Glu Leu Glu Glu Lys Lys Lys Glu Glu Lys Ile Ser
            180   185   190

Asp Asp His Lys Val Glu Glu Asn Lys Lys Ser Asp Asp His Lys Val
        195   200   205

Glu Glu Asn Lys Lys Ser Asp Asp His Lys Val Glu Glu Asn Lys Lys
    210   215   220

Ser Asp Asp His Lys Ile Glu Glu Val Lys Lys Val Glu Glu His Glu
225   230   235   240

Glu Asp Glu Glu Glu Asp Lys Lys Glu Lys Lys Ser Glu Asn Lys Asn
            245   250   255

Lys Asp Glu Asn Lys Asp Glu Asn Asp Glu Asp Asn Asp Glu Ile Ser
        260   265   270

Asp Glu Asp Glu Val Asp Asp Asp Val Glu Glu Asp Lys Asn Glu Asn
        275   280   285

Asp Asp Ile Asp Asp Asp Lys Lys Glu Thr Asp Lys Thr His Leu Glu

Glu Glu Glu Asn Glu Ile Ile Glu Lys Glu Phe Ser Asp Lys Lys Lys
305   310   315   320

Asn Gly Lys Asn Lys Asp Thr Lys Lys Glu Lys Ser Lys Asp Thr Glu
                325   330   335

Lys Glu Lys Ser Lys Asp Ile Glu Lys Glu Lys Ser Lys Asp Lys Glu
            340   345   350

Lys Glu Lys Ser Lys Asp Lys Glu Lys Glu Lys Gly Lys Asp Lys Glu
            355   360   365

Lys Glu Lys Ser Lys Asp Ile Glu Lys Glu Lys Glu Lys Asp Lys Asp
        370   375   380

Ile Glu Lys Glu Lys Ser Lys Asp Thr Ala Lys Glu Lys Glu Lys Asp
385   390   395   400

Lys Asp Ile Glu Lys Glu Lys Ser Lys Asp Met Glu Lys Leu Lys Asn
                405   410   415

Lys Gln Asn Asp Glu Lys Lys Lys Asp Asp Asn Glu Lys Lys Lys Asn
        420   425   430

Asp Lys Gln Asp Ile His Asp Asp Asn Asp Asp Glu Asn Asp Met Glu
        435   440   445

Glu Ile Glu Glu Asn Asp Asp Glu Glu Asp Glu Asp Glu Asp Met Glu
    450   455   460

Asn Lys Lys Lys Lys Lys Lys Gly Lys Asn Gly Asn Glu Asn Gly Asn
465   470   475   480

Glu Asn Gly Ser Glu Asn Gly Asn Glu Asn Gly Asn Glu Asn Gly Asn
            485   490   495

Glu Asn Glu Asn Lys Asn Glu Ser Glu Asn Glu Asn Glu Asn Glu Asn
        500   505   510

Glu Asn Glu Asn Gly Asn Glu Asn Glu Asn Glu Lys Glu Asn Glu Lys
        515   520   525

Asp Lys Asn Ile Lys Glu Ile Glu Asn Val Thr Asn Ala Asn Lys Glu
    530   535   540

Asn Tyr Glu Lys Ile Asn Lys Asn Ser Glu Ile Thr Ile Thr Lys Ser
545   550   555   560

Asn Ile Asp Ile Tyr Asn Asn Asn Arg Asn Asn Asp Ile Asp Lys Val
            565   570   575

Asn Asn His Ile Phe Thr Asn Gln Gln Lys Lys His Asn Leu His Asn
        580   585   590

Glu Gln Asn Lys Phe Asn Glu Thr Leu Asn Val Ser Thr Asn His Lys
          595   600   605

Asn His Tyr Glu Glu Lys Lys Lys Tyr Glu Ser Asn Met Phe Asn Val
          610   615   620

Asp Lys Arg Met His Lys Asn Leu Thr Ser Met Asp Thr Ile Leu His
625   630   635   640

Asn Leu Asn Asp Lys Leu Ser His His Lys Asp Leu Lys Asn Val Leu
          645   650   655

Asn Asp Lys Lys Lys Lys Lys Asn Lys
          660   665

<210> 108
<211> 807
<212> PRT
<213> Plasmodium falciparum

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|3845292

<400> 108

Met Ala Val Glu Ser Lys Pro Asn Asn Ser Ser Lys Glu Lys Asn Glu
1   5   10   15

Glu Asn Asp Ile Ile Asn Lys Cys Asp Asp Ser Asn Lys Ile Asn Gly
          20   25   30

Lys Glu Asn Ile Phe Ala Val Glu Lys Val Gly Ile Asn Glu Ser Gly
          35   40   45

His Met Ser Asn Asp Asn Ile Asn Lys Asn Gln Glu Lys Asn Lys Lys
          50   55   60

Lys Lys Lys Lys Lys Asn Thr His Lys Lys Val Asn Ile Asn Asn Thr
65   70   75   80

His Ile Asn Ile His Thr Thr Asn Asp Lys Asn Asn Gly Gln Asp Ile
          85   90   95

Asn Lys Pro Glu Val Ile Glu Arg Asp Asn Ile Ile Asn Ile Lys Asn
          100   105   110

Asp Thr Asn Asn Ile Leu Asp Ser Ser Tyr Asn Glu Glu Gly Asn Glu

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                115                    120                    125

Asn Asn Arg Asn Asp Ile Asn Asn Asn Asn Asn Asn Asn Ile Asn
    130                 135                 140

Ile Asn Asn Asn Asn Ile Asn Asn Ser Cys Ser Asn Asn Tyr Gly Leu
145                 150                 155                 160

Lys Lys Lys Ile Thr Leu Leu Lys Arg Asn Asp Ile Lys Asp Glu Gly
                165                 170                 175

Tyr Asn Asn Glu Asn Ile Thr Thr Leu Asn Asn Lys Asn Asn Leu Lys
        180                 185                 190

Asn Asn Asn Asn Tyr Asn Asp Asn Arg Asn Asn Asn Asn Asn Asn Lys
        195                 200                 205

Asn Asn Ile Asn Asn Asn Asn Asn Asn Asn Cys Cys Ser Glu Lys Thr
        210                 215                 220

Leu Glu Gln Arg Glu Lys Glu Tyr Asn Lys Ile Arg Ala Arg Ile Phe
225                 230                 235                 240

Ser Asn Phe Asn Lys Lys Gln Lys Asn Val Gln Lys Thr Glu Gln Asn
                245                 250                 255

Asn Leu Asn His Thr Tyr Leu Asn Asn Asn Ile Ile Asn Asn Ile Asn
        260                 265                 270

Asn Gly Asp Asn Gln Tyr Ala Tyr Ile Asn Asn Phe Tyr His Ile Tyr
        275                 280                 285

His Asn Asn Ser Tyr Asn His Ile Tyr Arg Gln Asn Asn Ile Pro Ile
        290                 295                 300

Cys Asn Ile Asn Asn His Ala Pro Asn Ile Glu Lys Leu Asn Asn Pro
305                 310                 315                 320

Tyr Tyr Tyr His Asp Asn His Ile Ala Tyr Thr Asn Tyr Met Tyr Ser
                325                 330                 335

Thr Gln Asn Lys Met Asn Asn Met Lys Thr Lys Gln Ile Gly His Tyr
                340                 345                 350

Gly Ile Asn Asn Glu Asp Asn Asn Asn Asn Asn Asn Asn Ile Asn
        355                 360                 365

Asn Asn Asn Asn Asn Asn Ile Asn Asn Asn Asn Ile Asn Asn Asn Asn
        370                 375                 380

Val Pro Leu Cys Ile Pro Gln Leu Asp Asn Tyr Asn Lys Thr Lys Asn
385                 390                 395                 400

Asn Phe Asn Gln Gly Thr Asn Asn Phe Asn Gln Gly Thr Asn Asn Phe
                405                 410                 415

                            125/155
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```
Asn Lys Cys Thr Asn Asn Phe Asn Asn Ala Lys Asn His Ile Lys His
         420             425             430

Asn Ile Asn Asn Thr Asn Lys Asn Ile Glu His Leu Asn Asn His Ser
         435             440             445

Ile Tyr Asn Phe Val Tyr Pro Glu Asn Lys Asn Ile Tyr Asp Ala Asn
     450             455             460

Gly Asn Leu Ile Asn Asn Asn Ile Ser Tyr Thr Gln Leu Lys Met Asn
465             470             475             480

Asn Asn Ile Asn Phe Asn Ile His Met Glu Ser Pro Ile Asn Gln Gln
             485             490             495

His Asn Asn Thr Phe Lys Val Asn Asn Asp Thr Asn Phe Phe Asn Glu
         500             505             510

Pro Thr Asn Lys Met Lys Lys Lys Asn Lys Glu Lys Lys Asn Ile His
         515             520             525

Phe Asn Asn Asn Asn Asn Asn Asn Asn Asn Lys Cys Leu Tyr Lys Asp
     530             535             540

Ile Asn Gln Asn Asp His Asn Asn Ser Ile Ile Asn Thr Asn Gln Asn
545             550             555             560

Phe Asp His Ile Asn Asn Val Lys Asn Thr Glu Gln Asn Leu Gln Lys
             565             570             575

Lys His Asn Lys Met Ser Gln Val Ser Lys Gln Ser Asn Asn Lys Asn
             580             585             590

Asn Lys Asn Asn Ser His Leu Lys Lys Gln Ile Asn Ile Asn Thr Asn
         595             600             605

Asn Asn Met Asp Asn Lys Asn Asn Ser His Ile Ser Lys Asn Val Ile
     610             615             620

Val Asp Asp Asn Lys Leu Lys Ser Ser His Ala Asp Asn Ser Asn Glu
625             630             635             640

Ile Val Thr Lys Gly Lys Lys Lys Lys Asn Thr Asn Lys Lys Lys Lys
             645             650             655

Ile Asn Asn Ile Asn Ser Val Asn Asn Val Asn Asn Ile Asn Ser Met
             660             665             670

Asn Asn Ile Asn Ser Met Asn Asn Ile Ile Ser Met Asn Asn Val Asn
             675             680             685

Asn Met Asn Asn Pro Met Tyr Phe Pro Asn Val Asn Ile Gln Lys Asp
         690             695             700
```

```
Asp Ser Asn Ile Ala Leu Leu Tyr Asn Asn Lys Pro Asn Ile Asp Phe
705             710             715             720

Asn Asn Phe Gln Leu Asn His Ile Asn Asn His Met Ile Gln Asn Asn
            725             730             735

Ile Met Thr Asn Asn Val Met Leu Asn Asn Asn Leu Thr Thr Ser Asn
            740             745             750

Phe Asn Tyr Asn Leu Ile Asn Tyr Ser Tyr Glu Pro Phe Tyr Glu Glu
        755             760             765

Asn Leu Met Asn Asp Leu Asp Tyr Cys Arg Asp Ile Ser Leu Tyr Glu
    770             775             780

Lys Arg Tyr Asp Arg Gly Asp Asn Leu Gln Gln Asn His Lys Arg Tyr
785             790             795             800

Asp Ile Asp Phe Pro Ser Leu
            805
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<210> 109
<211> 861
<212> PRT
<213> Plasmodium falciparum

<220>
<221> misc_feature
<223> hypothetical protein

<220>
<221> misc_feature
<223> gi|4493994

<400> 109

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Met Tyr Glu Leu Leu Leu Leu Arg Phe Leu Lys Tyr Glu Cys Asp Tyr
1               5               10              15

Asp Asp Ser Glu Asp Ile Leu Asn Lys Tyr Cys Phe Ile Arg Glu Arg
            20              25              30

Lys Tyr Asn Lys Pro Gly Gly Asn Lys Tyr Ile Pro Arg Asp Arg Ser
        35              40              45

Asn Asn Asn Asn Asn Ile Gly Asn Asn Val Asn Gly Met Asn Asn Phe
    50              55              60

Val Leu Leu Asn Asn Asn Asn Asn Asn Met Arg Ile Arg Asn Thr Tyr
65              70              75              80

Asn Asn Asn Asn Asn Asn Ile Asn Asn Asn Asn Asn Asn Asn Asn Asn
            85              90              95
```

Asn Phe Asn Asn Phe Asn Asn Asn Asn Asn Asn Asn Asn Phe Asn Asn
            100   105   110

Phe Asn Asn Phe Asn Asn Asn Asn Asn Phe Asn Asn Asn Asn His Phe
        115   120   125   .

Asn Ile His Asn Ile Asp Asn Tyr Asp Asp Ser Tyr Val Lys Gly Arg
    130   135   140

His Arg Gly Asn Tyr Leu Ser Ser Ser Leu Asn Asn Ile Asn Gly Lys
145   150   155   160

Val Phe Lys Asn Leu Asp Asp Asn Cys Tyr Asn Leu Pro Thr Asn Asn
            165   170   175

Leu Tyr Ile Asp Lys Glu Gly Lys Met His Leu Thr Gly Lys Glu His
        180   185   190

Tyr Asn Ala Ala Ser Ser Asn Glu Tyr Asn His Asn Asn Lys Asn Thr
        195   200   205

Asn Asn Tyr Asn Asn Asn Ser Tyr Asn Asn Asn Asn Phe Cys Asn Asn
    210   215   220

Asn Tyr Asn Asp Asn Asn Tyr Asn Asn Ser Asn Asn Lys Gly Met Gly
225   230   235   240

Asn Lys Tyr Glu Arg Ser Leu Asn Tyr Leu Lys Lys Glu His Asp Met
            245   250   255

Val Asp Tyr Glu Tyr Asn Asn Lys Gly Asn Ile Arg Lys Asn Asp Ser
        260   265   270

Glu Lys Tyr Trp Asp Asn Pro Pro Leu His Tyr Ser Lys Lys Asn Asn
    .   275   280   285

Tyr Asp Ile Phe Thr Leu Gly Asp Ile Lys Lys Tyr Ala Lys Asn Asn
    290   295   300

Glu Lys Lys Gly Asn Asn Lys Tyr Met Asn Met His Asp Asn Asn Ser
305   310   315   320

Asn Asn Ser Asn Asn Val Leu Asn Asn Asn Asn Met Asn Ser Asn Ser
            325   330   335

Asn Asn Tyr Asn Asn Ile Phe Lys Asp Asn Asp Glu Glu Asn Leu Thr
        340   345   350

Lys Ser Asn Phe Ala Lys Trp Phe Lys Asn Asn Asn Asn Met Asn Val
        355   360   365

Asn Glu Asn Thr Asp Ile Ile Lys Tyr Leu Asn Asn Lys Asn Ser Gln
    370   375   380

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Gly His Ser Asp Gly Lys Asn Asn Asn Asn Asn Asn Gly Asn Asn Ile
385   390   395   400

Ile Asn Asn Asn Ser Asn Asn Lys Asn Asn Ile Phe Gln Gly Asn Ser
               405   410   415

Arg Asn Tyr Glu Asn Val Met Tyr Asn Ile Asn Asn Asn Asn Asn Asn
           420   425   430

Asn Ile Ile Ser Asn Asn Lys Asn Glu Ala Ser Phe Asn Thr Asp Asn
       435   440   445

Ile Asn Thr Asn Ser Gly Arg Glu Glu Glu Lys Ile Ser Asn Thr Val
   450   455   460

Ala Glu Leu Leu Met Lys Gln Ile Ser Met Ile Lys Glu Arg Asn Lys
465   470   475   480

Gly Leu Asp Val Leu Glu Lys Lys Asn Thr Phe Gly Phe Leu Asp Asn
           485   490   495

Asn Tyr Gln Asn Tyr Gly Ser Asn Asn Asn Ser Ser Leu Glu Lys Asn
           500   505   510

Asn Met Lys Glu Asn Asp Ile Tyr Ser Lys Glu Ala Ser Lys Arg Ile
           515   520   525

Met Asp Ile Phe Arg Thr Leu Asn Ser Asn Gly Leu Val Ser Gln Glu
       530   535   540

Ser Leu Leu Val Asn Gln Ser Val Leu Asn Asn Asn Asn Asn Tyr Asn
545   550   555   560

Asn Tyr Asn Ser Asn Asn Asn Arg Asn Lys Asn Gln Asn Asn Asn Asn
           565   570   575

Asn Asn Asn Asn Asn Met Asn Asn Met Asn Asn Ser Asn Asn Asn Ile
           580   585   590

Asn Asn Asn Asn Asn Tyr Tyr Lys Asn Asn His Lys Tyr His Ser Met
           595   600   605

Asp Asn Val Thr Tyr Lys Lys Ile Phe Ile Asn Asn Tyr Ser Asn Asn
   610   615   620

Asp Gly Asn Asn Asn Ser Asn Asn Ser Asn Ser Asn Asn Asn Val Glu
625   630   635   640

His Tyr Tyr Met Asn Asn Lys Lys Asn Phe Lys Asn Lys Ile Asn Asn
           645   650   655

Tyr His Asn Leu Pro Asp Asn Lys Asn Asn Met Met Asn Asn Asn Thr
           660   665   670

Tyr Asn Asn Ile Asn Lys Asn Asn Leu Ser Asn Met Glu Asn Phe Pro

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Pro Ser Leu Ser Phe Asn Asn Ser Asp Ile Asn Lys Asn Asn Ala Gln
    690   695   700

Gly Asn Ile Asn Ile Thr Pro Ile Ile Asn Ser Ile Leu Arg Leu Asp
705   710   715   720

Asn Glu Val Asp Asn Val His Asn Asn Ser Ile Ser Glu Asn Ile Gln
                725   730   735

Asn Ala Lys Val Ser Asn Val Leu Asp Ser Leu Lys Ser Leu Leu Lys
                740   745   750

Ala Ser Lys Ser Gln Gly Asn Asn Asn Tyr Asn Ile Pro Lys Asn Phe
                755   760   765

Asn Asn Asn Asn Asn Asn Asn Asn Ser Lys Phe Ile Asn Tyr Asn
        770   775   780

Ser Gln Gln Tyr Tyr Pro Ser His Gln Gln Gln Gln Gln His Gln
785   790   795   800

Gln Gln Gln Gln Gln Gln Gln Gln Thr Leu Ile Gln Thr Gln Ile
                805   810   815

Asn Ser Thr His Leu Asn Asp Phe Asn Lys Lys Lys Phe Asn Lys Lys
                820   825   830

Glu Arg Tyr Pro Met Lys Tyr Pro Glu Phe Asp Gly Thr Thr Asn Glu
                835   840   845

Thr Met Met Val Arg Glu Lys Ala Glu Arg Gln Leu Val
    850   855   860

<210> 110
<211> 54
<212> PRT
<213> Plasmodium falciparum

<220>
<221> misc_feature
<223> Homologue of C.elegans F49C12.11 protein

<220>
<221> misc_feature
<223> gi|4494004

<400> 110

Met Pro Leu Asn Thr Gln Gly Gly Lys Lys Lys Pro Leu Lys Ala Ala
1   5   10   15

Lys Lys Gly Pro Val Glu Leu Thr Glu Glu Asp Ile Ala Phe Lys Lys
            20   25   30

Glu Met Ala Glu Lys Lys Lys Ala Glu Glu Glu Ala Lys Gln Lys Leu
            35   40   45

Leu Lys Ala Lys Lys Lys
        50

<210>   111
<211>   71
<212>   PRT
<213>   L. major

<220>
<221>   misc_feature
<223>   hypothetical protein P1105.01

<220>
<221>   misc_feature
<223>   gi|6996498

<400>   111

Met Arg Glu Arg Leu Ser Thr Asp Glu Tyr Val Tyr Trp Ser Gly Ile
1   5   10   15

Leu Leu Pro Leu Ile Arg Val Ile Asp Leu Ala Ser Val Asp Ser Pro
            20   25   30

Leu Ala Leu Ala Leu Arg Ala Cys Val Cys Val Cys Val Cys Val Cys
            35   40   45

Val Cys Val Cys Val Cys Val Cys Val Val Val Phe Leu Pro Leu Pro
        50   55   60

Ser Leu Arg Ala Gln Ser Pro
65   70

<210>   112
<211>   923
<212>   PRT
<213>   L. major

<220>
<221>   misc_feature
<223>   AC005941_2 L5204.2

<220>
<221>   misc_feature
<223>   gi|6978417

<400> 112

Met Gln Leu Ser Gln Glu Asp Glu Glu Ala Ile Arg Thr Leu Arg Gly
1   5   10   15

Glu Ile Glu Ala Ala Trp Ala Lys Ala Asp Thr Ala His Glu Gln Glu
            20   25   30

Gln Arg Ser Arg Glu Leu Leu His Thr Leu Arg Gln Gln Val Thr Glu
        35   40   45

Leu Asp Ala Met Val Glu Lys Thr Ala Gly Leu Ser Met Gly Gln Glu
    50   55   60

Ala Tyr Leu Arg Asp Leu Leu Thr Val Lys Lys Asp Arg Glu Glu Glu
65   70   75   80

Ala Met Leu Leu His Ala Ala Leu Asn Arg Thr Glu Ala Asp His Arg
                85   90   95

Gln Val Cys Val Gln Leu Ala Ala Ala Lys Gln Ala His Glu Ala Ala
            100   105   110

Gln Arg Glu Arg Asp Glu Gln Arg Gln Val Tyr Gln His Leu Leu Thr
        115   120   125

Ser Leu Glu Ala Glu Gln Arg Glu Arg Ala Ala Lys Glu Ala Ser Val
    130   135   140

Arg Gln Tyr Arg Asp Thr Thr Glu Leu Cys Met Arg Arg Leu Asp Glu
145   150   155   160

Arg Gly Val Glu Val Glu Arg Ala Ile Arg Glu Glu Lys Lys Ala Ala
                165   170   175

Lys Glu Ala Glu Gly Thr Ala Gln Glu Ile Gln Ala Ile Ala Arg Gln
            180   185   190

Leu Gln Glu Arg Gln Glu Arg Phe Gly Val Glu Ala Ala Arg Leu Ala
        195   200   205

Ala Ala Glu Arg Glu Asn Thr Ile Leu Thr Arg Glu Leu Pro Gln Arg
    210   215   220

Gln Ala Ala Leu His Glu Gln Gln Asp Glu Leu Lys Arg Glu Glu Lys
225   230   235   240

Gln Leu His Leu Leu Glu Lys Ser Ala Arg Ala Gln Gln Ala Glu Leu
        245   250   255

Ala Ala Leu Val Glu Lys Arg Ala Thr Ala Ala Ala Val Gln Thr
        260   265   270

Arg Ala Asn Ser Val Asp Ala Ala Leu Thr Glu Leu Ala Thr Glu Glu

Lys Ala Arg Ala Ala Leu Glu Glu Ala Val Ala Lys Glu Met Gln Arg
    290   295   300

Lys Thr Asn Thr Met His Thr Asn Thr Phe Lys Ala Thr Ala Ser Ser
305   310   315   320

Lys Val Glu Gly Gln Arg Val Met Glu Ala Gly Lys Ser Arg Arg Leu
                325   330   335

His Gln Gln Leu Glu Leu Leu Arg Thr Glu Asn Glu Lys Met Arg Lys
                340   345   350

Glu Ile Tyr Tyr Ala Glu Gln Asn His Glu Lys Asn Thr Lys Glu Ala
                355   .   360   365

Gln Gln Ala Leu Leu Asn Tyr His Arg Thr Leu Asp Ala Ile Arg Thr
    370   375   380

Arg Arg Ser Glu Ala Lys Ala Val Glu Glu Asp Ile Ala Leu His Gln
385   390   395   400

Lys Lys Leu Lys Ala Gln Gln Ala Leu Leu Ser Thr Val Thr Ala Asp
                405   410   415

Arg Gln Lys Thr Glu Lys Ala Leu Arg Glu Thr Glu Ala Glu Leu Leu
                420   425   430

Leu Leu Arg Asn Arg His Ala Ser Lys Gln Glu Glu Leu Glu Ser Val
                435   440   445

Lys Thr Glu Leu Ile Gln Gln Glu Ala Asp Met Cys Gln Leu His Gly
    450   455   460

Leu Ser Arg Gln Leu Asn Lys Asp Val Ala Asn Thr Glu Gln Arg Leu
465   470   475   480

Arg Phe Leu Arg Glu Asp Gln Gln His Ala Glu Ser Arg Val Glu Ala
                485   490   495

Leu Arg Ser Glu Ala Gln Glu Leu Arg Gln Val Ile Ala Gln Tyr Asp
                500   505   510

Leu Glu Ala Gln Gln Gln Gly Thr Arg Leu Lys Tyr Met Thr His Glu
                515   520   525

Arg Asn Ala Ile Ala Thr Gln Leu Leu Leu Arg Ser Glu Glu Leu Glu
    530   535   540

Leu Ile Arg Glu Lys Ile Arg Leu Ala Asp Ala Thr Arg Val Ser Gly
545   550   555   560

Thr Thr Lys Tyr Gln Arg Ala Met Lys Gln Leu Leu Glu Ser Arg Asp
                565   570   575

Leu Leu Val Glu Gln Arg Leu Arg Cys Arg Ile Ala Leu Val Arg Leu
        580   585   590

Arg Tyr Leu Asp Arg Leu His Thr Lys Glu Val His Gln Glu Lys Leu
        595   600   605

Leu Ser Gln Ser Arg Ala Arg Val Arg Ala Leu Ala Asp Glu Leu Gly
    610   615   620

Thr Lys His Asn Val His Cys Trp Arg Ser Met Glu Ser Asn Ala Pro
625   630   635   640

Glu Val Leu Asp Ala Leu Ala Lys Val Gln Leu Leu Gln Ala Lys Leu
                645   650   655

Leu Arg Lys His Gly Glu Leu Lys Glu Lys Thr Asp Leu Val Glu Lys
            660   665   670

Glu Glu Arg Ala Tyr Gln Gln Leu Arg Gln Lys Leu Ala Arg Met Pro
        675   680   685

Gly Pro Glu Ala Ala Glu Glu Leu Ala Leu Cys Ala Glu Asn Met Gln
    690   695   700

Gln Arg Lys Ala Gln Leu Leu Cys Met Thr Asp Ser Leu Ala Glu Ala
705   710   715   720

Glu Gln Glu Ala Glu Val Leu Glu Val His Val Ala Gln Leu Gln Glu
                725   730   735

Glu Leu Gln Asp Leu Lys His Arg Tyr Tyr Gln Glu Lys Thr Lys His
            740   745   750

Ala Ala Leu Arg Gln Glu Glu Lys Leu Val Ala Arg Thr Trp Gly Ala
        755   760   765

Gly Gly Ala Gly Ala Ala Arg Gln Ala Gly Ser Gly Thr Gly Ser Ser
    770   775   780

Val Gly Asp Gly Asp Gly Ala Val Val Ala Ala Gly Ala Ser Ala Pro
785   790   795   800

Ser Ala Glu Gln Arg Arg Thr Asn Thr Asp Asp Arg Ser Pro Ser Ala
                805   810   815

Gly Gly Pro Ala Ser Ala Asp Val Glu His Arg Ser Ala Ser Gln Pro
            820   825   830

Gln Gln Pro His Ser His Ala Gly Gly Ser Ala Ile Val Ser Asn Ser
        835   840   845

His Asn Gly Val Gln Ala Ala Ala Ser Gly Thr Gly Arg Met Ser Ala
    850   855   860

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Ala Asn Ser Gly Arg Val Gly Asn Gly Ser Val Pro Pro Arg Asn Gly
865             870             875             880

Arg Arg Arg Ala Pro Leu Ala Glu Ala Ile Leu Asp Thr Leu Thr Ala
            885             890             895

Gly Pro Pro Gln Pro Asn Phe Pro Leu Gln Arg Pro Pro His Gln Arg
        900             905             910

Gln Phe Val Gly Gly Gly Phe Ser Leu Thr Arg
        915             920

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Met Ser Thr Pro Val Ser Gly Val Val Pro Gln Asp Arg Trp Gln Pro
1               5               10              15

Gln Gln Arg Val Lys Val Cys Gln Tyr Gln Asp Cys Gly Ala Pro Phe
            20              25              30

Gly Phe Phe Ser Thr Lys Val Asn Cys His Arg Cys Gly Ile Val Leu
        35              40              45

Cys Ser Lys Cys Ala Ala Thr Lys Thr Val Ile Pro Arg Tyr Tyr Ser
    50              55              60

Asn Glu Thr Val Pro Val Cys Gln Arg Cys Tyr Gln Val Val Glu Arg
65              70              75              80

Tyr Lys Glu Arg Gly Ser Val Thr Pro Gly Tyr Val Val His Ser Thr
            85              90              95

Thr Ile Ser Ala Thr Pro Ala Arg Ser Ser Pro Val Pro Pro Leu His
            100             105             110

Thr Thr Pro Ala Leu Arg Pro His Ala Pro Ser Pro Gln Pro Ala Ser
        115             120             125

Val Val Ser Thr Ala Thr Leu Val His Pro Val Glu Glu Asp Ala Val
    130             135             140
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Ser Thr Lys Pro Ser Val Ser Glu Ala Asp Leu His Ala Leu Arg Ser
145   150   155   160

Ile Ile Glu Thr Leu Gln Gln Ala Leu Asn Asp Glu Gln His Asn Ala
                165   170   175

Ala Leu Ala Ala Thr Ser Ala Ala Glu Gln Leu Arg Thr Ala Lys Glu
                180   185   190

Glu Asn Thr Ala Leu Lys Ser Thr Ala His Leu Leu Gln Gln Arg Leu
        195   200   205

Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg
    210   215   220

Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala
225   230   235   240

Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu
                245   250   255

Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg
                260   265   270

Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr
        275   280   285

Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala
    290   295   300

Ala Asp Gly Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu
305   310   315   320

Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu
                325   330   335

Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln
                340   345   350

Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr
        355   360   365

Gln Gln Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp
        370   375   380

Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln
385   390   395   400

Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln
                405   410   415

Val Ala Arg Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp
                420   425   430

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Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu
        435   440   445

Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu
        450   455   460

Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu
465   470   475   480

Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Gly Asp Glu Ala Arg Gln
                485   490   495

Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala
            500   505   510

Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala Ala
        515   520   525

Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg
        530   535   540

Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu
545   550   555   560

Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu
            565   570   575

Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg
            580   585   590

Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr
        595   600   605

Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Val Asp
        610   615   620

Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln
625   630   635   640

Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln
            645   650   655

Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala
            660   665   670

Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln
        675   680   685

Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp
        690   695   700

Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg
705   710   715   720

Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala

Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn
            740   745   750

Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala
            755   760   765

Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala
            770   775   780

Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp
785   790   795   800

Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu
                805   810   815

Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu
            820   825   830

Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu
            835   840   845

Glu Ala Gln Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln
            850   855   860

Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala
865   870   875   880

Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala Ala
                885   890   895

Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg
            900   905   910

Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu
            915   920   925

Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu
            930   935   940

Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg
945   950   955   960

Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala
                965   970   975

Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu
            980   985   990

Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg
            995   1000   1005

Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp
      1010   1015   1020

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Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg
    1025   1030   1035

Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn
    1040   1045   1050

Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg
    1055   1060   1065

Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp
    1070   1075   1080

Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln
    1085   1090   1095

Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln
    1100   1105   1110

Val Ala Arg Leu Ala Ala Asp Gly Asp Glu Ala Arg Gln Gln Leu
    1115   1120   1125

Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr
    1130   1135   1140

Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala
    1145   1150   1155

Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu
    1160   1165   1170

Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu
    1175   1180   1185

Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg
    1190   1195   1200

Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp
    1205   1210   1215

Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg
    1220   1225   1230

Leu Ala Ala Asp Gly Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn
    1235   1240   1245

Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg
    1250   1255   1260

Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp
    1265   1270   1275

Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln
    1280   1285   1290

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Arg Leu  Asp Thr Ala Thr Gln  Gln Arg Ala Glu Leu  Glu Ala Gln
    1295                 1300             1305

Val Ala  Arg Leu Ala Ala Asn  Ala Glu Glu Leu Gln  Gln Arg Leu
    1310                 1315             1320

Asp Thr  Ala Thr Gln Gln Arg  Ala Glu Leu Glu Ala  Arg Val Ala
    1325                 1330             1335

Arg Leu  Ala Ala Asp Arg Asp  Glu Ala Arg Gln Gln  Leu Ala Ala
    1340                 1345             1350

Asn Ala  Glu Glu Leu Gln Gln  Arg Leu Asp Thr Ala  Thr Gln Gln
    1355                 1360             1365

Arg Ala  Glu Leu Glu Ala Arg  Val Ala Arg Leu Ala  Ala Asp Arg
    1370                 1375             1380

Asp Glu  Ala Arg Gln Gln Leu  Ala Ala Asn Ala Glu  Glu Leu Gln
    1385                 1390             1395

Gln Arg  Leu Asp Thr Ala Thr  Gln Gln Arg Ala Glu  Leu Glu Ala
    1400                 1405             1410

Gln Val  Ala Arg Leu Ala Ala  Asn Ala Glu Glu Leu  Gln Gln Arg
    1415                 1420             1425

Leu Asp  Thr Ala Thr Gln Gln  Arg Ala Glu Leu Glu  Ala Arg Val
    1430                 1435             1440

Ala Arg  Leu Ala Ala Asp Arg  Asp Glu Ala Arg Gln  Gln Leu Ala
    1445                 1450             1455

Ala Asn  Ala Glu Glu Leu Gln  Gln Arg Leu Asp Thr  Ala Thr Gln
    1460                 1465             1470

Gln Arg  Ala Glu Leu Glu Ala  Gln Val Ala Arg Leu  Ala Ala Asp
    1475                 1480             1485

Arg Asp  Glu Ala Arg Gln Gln  Leu Ala Ala Asn Ala  Glu Glu Leu
    1490                 1495             1500

Gln Gln  Arg Leu Asp Thr Ala  Thr Gln Gln Arg Ala  Glu Leu Glu
    1505                 1510             1515

Ala Arg  Val Ala Arg Leu Ala  Ala Asp Gly Asp Glu  Ala Arg Gln
    1520                 1525             1530

Gln Leu  Ala Ala Asn Ala Glu  Glu Leu Gln Gln Arg  Leu Asp Thr
    1535                 1540             1545

Ala Thr  Gln Gln Arg Ala Glu  Leu Glu Ala Gln Leu  Ala Arg Leu
    1550                 1555             1560

Ala Ala  Asp Arg Asp Glu Ala  Arg Gln Gln Leu Ala  Ala Asn Ala
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Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala
         1580   1585   1590

Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Gly Asp Glu
         1595   1600   1605

Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg
         1610   1615   1620

Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val
         1625   1630   1635

Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala
         1640   1645   1650

Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln
         1655   1660   1665

Gln Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp
         1670   1675   1680

Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu
         1685   1690   1695

Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu
         1700   1705   1710

Ala Gln Leu Ala Arg Leu Ala Ala Asp Gly Asp Glu Ala Arg Gln
         1715   1720   1725

Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr
         1730   1735   1740

Ala Thr Gln Gln Arg Ala Glu Leu Glu Val Glu Met Ala Val Leu
         1745   1750   1755

Leu Arg Glu Arg Glu Glu Ala Arg Gly Glu Thr Ala Val Ala Gly
         1760   1765   1770

Glu Gln Val Gln Leu Tyr Arg Glu Thr Val Glu Glu Glu Glu Cys
         1775   1780   1785

Leu Lys Glu Glu Arg Trp Cys Leu Glu Ser Arg Val Ala Gln Leu
         1790   1795   1800

Arg Glu Ala Ser Ala Ala Ala Lys Gln Gln Arg Gln Glu Val Ala
         1805   1810   1815

Ala Lys Ala Asn Glu Val Gln Glu Arg Leu Asp Ser Met Ala Arg
         1820   1825   1830

Arg Cys Ile Ala His Glu Gly Asp Ala Pro Gln Arg Ala Asp Gly
         1835   1840   1845

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Arg Asp  Asp Ala Leu Arg Gln  Leu Ala Asn Leu Arg  Glu Glu Val
    1850              1855              1860

Lys Leu  Ser Glu Lys Gln Lys  Ala Met Glu Arg Val  Ile Pro Gly
    1865              1870              1875

Val Arg  Glu Arg Gln Met Arg  Leu Glu Ala Ala Glu  Glu Gln Arg
    1880              1885              1890

Ala Asp  Leu Glu Ala Arg Leu  Val Asp Glu Ala Gly  Asp Leu Arg
    1895              1900              1905

Ser Arg  Pro Ala Ala Ser Thr  Asn Glu Val Asn Leu  Tyr Arg Asp
    1910              1915              1920

Leu Ala  Leu Gln Glu His Glu  Ala Ala Gln Asn Arg  Cys Thr Thr
    1925              1930              1935

Leu Glu  Ala Gln Val Ala Ser  Leu Thr Ser Asp Arg  Asp Asn Gly
    1940              1945              1950

Arg Gln  Gln Glu Ser Ala Asp  Leu Ser Glu Ala Gln  Arg His Leu
    1955              1960              1965

Asp Asn  Val Gln Glu Arg Asp  Met Ala His His Arg  Cys Ala Ala
    1970              1975              1980

Leu Glu  Glu Gln Asn Ala Ala  Met Ala Ser Glu Leu  Gln Ala Val
    1985              1990              1995

Lys Ala  Lys Leu Arg Gln Ala  Ser Val Lys Ala Ser  Ser Leu Met
    2000              2005              2010

Thr Arg  Leu Ser Ala Ser Ser  Ser Gly Ala Gly Gly  Val Ser Ala
    2015              2020              2025

Arg Val  Arg Val Gly Gly Ser  Ser Ala Val Pro Gln  Ala Ala Pro
    2030              2035              2040

His Arg  Asp Ala Glu Leu Ile  Ala Glu Val Gly Glu  Arg Leu Arg
    2045              2050              2055

Glu Arg  Gly Glu Ala Met Arg  Leu Leu Ala Glu Gly  Val Glu Leu
    2060              2065              2070

Arg Glu  Arg Ala Arg Pro Leu  Glu Arg Val Leu Ala  Glu Lys Leu
    2075              2080              2085

Ile Gly  Asp Arg Arg Thr Ser  Asp Ala Glu Glu Val  Ala Thr Glu
    2090              2095              2100

Pro Thr  Gln Val Arg Arg Asn  Ala Ala His Ser Arg  His Leu Asp
    2105              2110              2115
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Ser Arg Glu Ala Gln Leu Asp Glu Arg Ala Ala Arg Leu Arg Glu
2120   2125   2130

Lys Glu Gln Gln Leu Leu Arg Val Ala Arg Glu Leu Gln Thr Lys
2135   2140   2145

Ser Arg Ala Leu Gln Val Leu Tyr Ala Arg Ala Leu Asn Arg Pro
2150   2155   2160

Gln Val Thr Ser Leu Leu Leu Thr Ala Asp Gly Asp Asp Thr Ser
2165   2170   2175

Tyr Pro Asp Thr Pro Gln Gln Gln Gln Gln Gly Thr Arg Thr Pro
2180   2185   2190

Leu Arg Glu Pro Val Tyr Ser Leu Asp Ser Glu Val Ala His Tyr
2195   2200   2205

Gly Arg Thr Ala Gly Ala Ala Val Ser Ser Gly Leu Ala Ser Pro
2210   2215   2220

Leu Pro Arg Glu Pro Pro Arg Ala Arg Met Val His Arg Ala Val
2225   2230   2235

Glu Ala Thr Gly Thr Glu Glu Asp Thr Gln Val Arg Leu Thr Ala
2240   2245   2250

Ala Thr Glu Ala Tyr Arg Asp Val Leu Tyr Glu His Ile Leu Glu
2255   2260   2265

Ser Asn Gly Leu Gln Gly Val Asp Val Leu Ala Gln Tyr Leu Pro
2270   2275   2280

His His Thr Ser Gly Gly Gly Leu Lys Thr Pro Arg Leu Pro Gly
2285   2290   2295

Ser Gly Ile Ile Ser Lys Thr Arg Ala Met Leu Arg Ala Leu Glu
2300   2305   2310

Glu Arg Leu Gly Ala Ser Arg Gly Val Gly Arg Gly Val Asp Pro
2315   2320   2325

Ala Val Gln Glu Arg Ser Leu Glu Ala Phe Arg Arg Leu Glu Ala
2330   2335   2340

Ala Leu Ser Ala Leu Cys Gly Gly Ser His Ala
2345   2350

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Gln Gln Arg Val Lys Val Cys Gln Tyr Gln Asp Cys Gly Ala Pro Phe
            20   25   30

Gly Phe Phe Ser Thr Lys Val Asn Cys His Arg Cys Gly Ile Val Leu
        35   40   45

Cys Ser Lys Cys Ala Ala Thr Lys Thr Val Ile Pro Arg Tyr Tyr Ser
    50   55   60

Asn Glu Thr Val Pro Val Cys Gln Arg Cys Tyr Gln Val Val Glu Arg
65   70   75   80

Tyr Lys Glu Arg Gly Ser Val Thr Pro Gly Tyr Val Val His Ser Thr
            85   90   95

Thr Ile Ser Ala Thr Pro Ala Arg Ser Ser Pro Val Pro Pro Leu His
            100   105   110

Thr Thr Pro Ala Leu Arg Pro His Ala Pro Ser Pro Gln Pro Ala Ser
        115   120   125

Val Val Ser Thr Ala Thr Leu Val His Pro Val Glu Glu Asp Ala Val
    130   135   140

Ser Thr Lys Pro Ser Val Ser Glu Ala Asp Leu His Ala Leu Arg Ser
145   150   155   160

Ile Ile Glu Thr Leu Gln Gln Ala Leu Asn Asp Glu Gln His Asn Ala
                165   170   175

Ala Leu Ala Ala Thr Ser Ala Ala Glu Gln Leu Arg Thr Ala Lys Glu
            180   185   190

Glu Asn Thr Ala Leu Lys Ser Thr Ala His Leu Leu Gln Gln Arg Leu
        195   200   205

Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg
    210   215   220

Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala
225   230   235   240

Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu
245 250 255

Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg
260 265 270

Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr
275 280 285

Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala
290 295 300

Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln
305 310 315 320

Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp
325 330 335

Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg
340 345 350

Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala
355 360 365

Arg Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala
370 375 380

Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala
385 390 395 400

Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu
405 410 415

Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala
420 425 430

Gln Val Ala Arg Leu Ala Ala Asn Arg Asp Glu Ala Arg Gln Gln Leu
435 440 445

Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln
450 455 460

Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala Ala Asp Arg
465 470 475 480

Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln
485 490 495

Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val
500 505 510

Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala
515 520 525

Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg

530   535   540

Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asn Ala Glu Glu
545   550   555   560

Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu
                565   570   575

Ala Gln Val Ala Arg Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg
                580   585   590

Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala
        595   600   605

Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn
    610   615   620

Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala
625   630   635   640

Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Gly Asp Glu Ala
                645   650   655

Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp
            660   665   670

Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu
        675   680   685

Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu
    690   695   700

Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu
705   710   715   720

Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln
            725   730   735

Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala
        740   745   750

Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala
        755   760   765

Asp Gly Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu
    770   775   780

Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala
785   790   795   800

Arg Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu
            805   810   815

Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln
        820   825   830

Gln Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Gly
        835   840   845

Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln
    850   855   860

Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val
865   870   875   880

Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala
            885   890   895

Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg
        900   905   910

Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp Glu
        915   920   925

Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu
    930   935   940

Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg
945   950   955   960

Leu Ala Ala Asp Gly Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala
            965   970   975

Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu
        980   985   990

Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg
        995   1000   1005

Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp
    1010   1015   1020

Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg
    1025   1030   1035

Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala
    1040   1045   1050

Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala
    1055   1060   1065

Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu
    1070   1075   1080

Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu
    1085   1090   1095

Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asn Ala Glu Glu Leu
    1100   1105   1110

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Gln Gln  Arg Leu Asp Thr Ala  Thr Gln Gln Arg Ala  Glu Leu Glu
    1115                 1120             1125

Ala Gln  Val Ala Arg Leu Ala  Ala Asn Ala Glu Glu  Leu Gln Gln
    1130                 1135             1140

Arg Leu  Asp Thr Ala Thr Gln  Gln Arg Ala Glu Leu  Glu Ala Arg
    1145                 1150             1155

Val Ala  Arg Leu Ala Ala Asp  Arg Asp Glu Ala Arg  Gln Gln Leu
    1160                 1165             1170

Ala Ala  Asn Ala Glu Glu Leu  Gln Gln Arg Leu Asp  Thr Ala Thr
    1175                 1180             1185

Gln Gln  Arg Ala Glu Leu Glu  Ala Gln Val Ala Arg  Leu Ala Ala
    1190                 1195             1200

Asn Ala  Glu Glu Leu Gln Gln  Arg Leu Asp Thr Ala  Thr Gln Gln
    1205                 1210             1215

Arg Ala  Glu Leu Glu Ala Gln  Leu Ala Arg Leu Ala  Ala Asp Arg
    1220                 1225             1230

Asp Glu  Ala Arg Gln Gln Leu  Ala Ala Asn Ala Glu  Glu Leu Gln
    1235                 1240             1245

Gln Arg  Leu Asp Thr Ala Thr  Gln Gln Arg Ala Glu  Leu Glu Ala
    1250                 1255             1260

Gln Val  Ala Arg Leu Ala Ala  Asn Ala Glu Glu Leu  Gln Gln Arg
    1265                 1270             1275

Leu Asp  Thr Ala Thr Gln Gln  Arg Ala Glu Leu Glu  Ala Arg Val
    1280                 1285             1290

Ala Arg  Leu Ala Ala Asp Arg  Asp Glu Ala Arg Gln  Gln Leu Ala
    1295                 1300             1305

Ala Asn  Ala Glu Glu Leu Gln  Gln Arg Leu Asp Thr  Ala Thr Gln
    1310                 1315             1320

Gln Arg  Ala Glu Leu Glu Ala  Arg Val Ala Arg Leu  Ala Ala Asp
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Gly Asp  Glu Ala Arg Gln Gln  Leu Ala Ala Asn Ala  Glu Glu Leu
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Gln Gln  Arg Leu Asp Thr Ala  Thr Gln Gln Arg Ala  Glu Leu Glu
    1355                 1360             1365

Ala Gln  Val Ala Arg Leu Ala  Ala Asn Ala Glu Glu  Leu Gln Gln
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Arg Leu  Asp Thr Ala Thr Gln  Gln Arg Ala Glu Leu  Glu Ala Arg
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     1385                    1390                    1395

Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu
    1400                    1405                    1410

Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr
    1415                    1420                    1425

Gln Gln Arg Ala Glu Leu Glu Ala Gln Val Ala Arg Leu Ala Ala
    1430                    1435                    1440

Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu
    1445                    1450                    1455

Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu
    1460                    1465                    1470

Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Gly Asp Glu Ala Arg
    1475                    1480                    1485

Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp
    1490                    1495                    1500

Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg
    1505                    1510                    1515

Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn
    1520                    1525                    1530

Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg
    1535                    1540                    1545

Ala Glu Leu Glu Ala Arg Val Ala Arg Leu Ala Ala Asp Gly Asp
    1550                    1555                    1560

Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln
    1565                    1570                    1575

Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Ala Arg
    1580                    1585                    1590

Val Ala Arg Leu Ala Ala Asp Arg Asp Glu Ala Arg Gln Gln Leu
    1595                    1600                    1605

Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp Thr Ala Thr
    1610                    1615                    1620

Gln Gln Arg Ala Glu Leu Glu Ala Gln Leu Ala Arg Leu Ala Ala
    1625                    1630                    1635

Asp Arg Asp Glu Ala Arg Gln Gln Leu Ala Ala Asn Ala Glu Glu
    1640                    1645                    1650

Leu Gln Gln Arg Leu Asp Thr Ala Thr Gln Gln Arg Ala Glu Leu
    1655                    1660                    1665
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Glu Ala Gln Leu Ala Arg Leu Ala Ala Asp Gly Asp Glu Ala Arg
    1670   1675   1680

Gln Gln Leu Ala Ala Asn Ala Glu Glu Leu Gln Gln Arg Leu Asp
    1685   1690   1695

Thr Ala Thr Gln Gln Arg Ala Glu Leu Glu Val Glu Met Ala Val
    1700   1705   1710

Leu Leu Arg Glu Arg Glu Glu Ala Arg Gly Glu Thr Ala Val Ala
    1715   1720   1725

Gly Glu Gln Val Gln Leu Tyr Arg Glu Thr Val Glu Glu Glu Glu
    1730   1735   1740

Cys Leu Lys Glu Glu Arg Trp Cys Leu Glu Ser Arg Val Ala Gln
    1745   1750   1755

Leu Arg Glu Ala Ser Ala Ala Ala Lys Gln Gln Arg Gln Glu Val
    1760   1765   1770

Ala Ala Lys Ala Asn Glu Val Gln Glu Arg Leu Asp Ser Met Ala
    1775   1780   1785

Arg Arg Cys Ile Ala His Glu Gly Asp Ala Pro Gln Arg Ala Asp
    1790   1795   1800

Gly Arg Asp Asp Ala Leu Arg Gln Leu Ala Asn Leu Arg Glu Glu
    1805   1810   1815

Val Lys Leu Ser Glu Lys Gln Lys Ala Met Glu Arg Val Ile Pro
    1820   1825   1830

Gly Val Arg Glu Arg Gln Met Arg Leu Glu Ala Ala Glu Glu Gln
    1835   1840   1845

Arg Ala Asp Leu Glu Ala Arg Leu Val Asp Glu Ala Gly Asp Leu
    1850   1855   1860

Arg Ser Arg Pro Ala Ala Ser Thr Asn Glu Val Asn Leu Tyr Arg
    1865   1870   1875

Asp Leu Ala Leu Gln Glu His Glu Ala Ala Gln Asn Arg Cys Thr
    1880   1885   1890

Thr Leu Glu Ala Gln Val Ala Ser Leu Thr Ser Asp Arg Asp Asn
    1895   1900   1905

Gly Arg Gln Gln Glu Ser Ala Asp Leu Ser Glu Ala Gln Arg His
    1910   1915   1920

Leu Asp Asn Val Gln Glu Arg Asp Met Ala His His Arg Cys Ala
    1925   1930   1935

Ala Leu Glu Glu Gln Asn Ala Ala Met Ala Ser Glu Leu Gln Ala
    1940   1945   1950

Val Lys Ala Lys Leu Arg Gln Ala Ser Val Lys Ala Ser Ser Leu
    1955   1960   1965

Met Thr Arg Leu Ser Ala Ser Ser Ser Gly Ala Gly Gly Val Ser
    1970   1975   1980

Ala Arg Val Arg Val Gly Gly Ser Ser Ala Val Pro Gln Ala Ala
    1985   1990   1995

Pro His Arg Asp Ala Glu Leu Ile Ala Glu Val Gly Glu Arg Leu
    2000   2005   2010

Arg Glu Arg Gly Glu Ala Met Arg Leu Leu Ala Glu Gly Val Glu
    2015   2020   2025

Leu Arg Glu Arg Ala Arg Pro Leu Glu Arg Val Leu Ala Glu Lys
    2030   2035   2040

Leu Ile Gly Asp Arg Arg Thr Ser Asp Ala Glu Glu Val Ala Thr
    2045   2050   2055

Glu Pro Thr Gln Val Arg Arg Asn Ala Ala His Ser Arg His Leu
    2060   2065   2070

Asp Ser Arg Glu Ala Gln Leu Asp Glu Arg Ala Ala Arg Leu Arg
    2075   2080   2085

Glu Lys Glu Gln Gln Leu Leu Arg Val Ala Arg Glu Leu Gln Thr
    2090   2095   2100

Lys Ser Arg Ala Leu Gln Val Leu Tyr Ala Arg Ala Leu Asn Arg
    2105   2110   2115

Pro Gln Val Thr Ser Leu Leu Leu Thr Ala Asp Gly Asp Asp Thr
    2120   2125   2130

Ser Tyr Pro Asp Thr Pro Gln Gln Gln Gln Gln Gly Thr Arg Thr
    2135   2140   2145

Pro Leu Arg Glu Pro Val Tyr Ser Leu Asp Ser Glu Val Ala His
    2150   2155   2160

Tyr Gly Arg Thr Ala Gly Ala Ala Val Ser Ser Gly Leu Ala Ser
    2165   2170   2175

Pro Leu Pro Arg Glu Pro Pro Arg Ala Arg Met Val His Arg Ala
    2180   2185   2190

Val Glu Ala Thr Gly Thr Glu Glu Asp Thr Gln Val Arg Leu Thr
    2195   2200   2205

Ala Ala Thr Glu Ala Tyr Arg Asp Val Leu Tyr Glu His Ile Leu

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Glu Ser Asn Gly Leu Gln Gly Val Asp Val Leu Ala Gln Tyr Leu
    2225   2230   2235

Pro His His Thr Ser Gly Gly Gly Leu Lys Thr Pro Arg Leu Pro
    2240   2245   2250

Gly Ser Gly Ile Ile Ser Lys Thr Arg Ala Met Leu Arg Ala Leu
    2255   2260   2265

Glu Glu Arg Leu Gly Ala Ser Arg Gly Val Gly Arg Gly Val Asp
    2270   2275   2280

Pro Ala Val Gln Glu Arg Ser Leu Glu Ala Phe Arg Arg Leu Glu
    2285   2290   2295

Ala Ala Leu Ser Ala Leu Cys Gly Gly Ser His Ala
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Met Asn Ser Ala Asp Ala Leu Glu Pro Ile Pro Arg Ser Ile Ala Pro
1   5   10   15

Asp Gln Glu Leu Ser Ile Leu Lys Leu Ile Leu Asp Leu Arg Ser Leu
            20   25   30

Gly Asp Val Glu Gly Ser Lys Lys Val Arg Arg Arg Val Arg Glu Ala
        35   40   45

Leu Leu Lys Ser Ser Asp Asp Ser Glu Ala Met Ser Lys Val Asp Asp
    50   55   60

Ile Ile Arg Arg Gly Lys Arg Thr Gln Ser Lys Leu Asp Gly Ser Tyr
65   70   75   80

Asp Glu Arg Gln Arg Leu Lys Arg Lys Arg Glu Glu Asp Leu Ala
            85   90   95

Ala Ala Ser Arg Leu Val Asp Val Glu Ala Gly Ser Gly Glu Asp Ser
          100   105   110

Glu Gly Ser Ala Ser Thr Glu Glu Asp Gly Thr Glu Asp
         115   120   125

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Gln Pro Asn Asp Leu Ile Glu Ala Leu Asn Gly Thr Arg Val Arg Asn
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Val Gly Asp Phe Arg Arg Val Ile Glu Glu Glu Leu Thr Pro Gly Met
          20   25   30

Ile Val Pro Val Arg Ile Asn Arg Gly Gly Val Ala Met Val Val Thr
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Val Arg Val Glu Ala Gly Arg Ser Leu
    50   55

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Met Ile Ser Val Asp Leu His His His Lys Thr Arg Ile Glu Met His
1   5   10   15

Val Lys Ala Cys Asn Asp Arg Ser His Arg His Thr His Thr His Thr
        20   25   30

His Thr Asn Ser Phe Val Ser Gly Asp Val Phe His Val Trp Arg Val
        35   40   45

Arg Ser Phe His Ser Ala Pro Ser Val Phe Phe Cys Phe Ser Val Cys
    50   55   60

Thr His Leu Leu Phe Ser Pro Ser Ser Pro Tyr Ala His His Ala Arg
65   70   75   80

Val Cys Val Arg Ala Cys Val Cys Val Cys Val Cys Val Val
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Met Ile Ser Leu Met Leu Leu Ala Ala Leu Leu Trp Gly Val Thr Asn
1   5   10   15

Pro Leu Leu Lys His Tyr Ser Arg Gly Met Ala Ser Ser Gly Ser Ala
        20   25   30

Lys Asp Asp Ala Leu Phe Leu Val Arg Arg Pro Lys Tyr Leu Val Ala
        35   40   45

Gln Ala Val Asn Leu Ser Gly Ser Val Val Phe Phe His Ser Leu Arg
    50   55   60

Glu Val Asp Val Ser Val Gly Ser Ile Val Val Asn Ser Leu Ala Phe
65   70   75   80

Val Ile Thr Val Leu Met Ser Val Leu Val Leu Arg Glu Gly Leu Leu
            85   90   95

Arg Ala Arg Thr Thr Ala Gly Cys Leu Leu Val Met Val Gly Thr Ala
            100   105   110

Leu Cys Thr Tyr Ser Ser Ser Ala Ser
        115   120